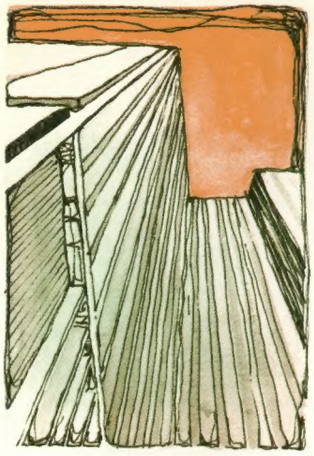
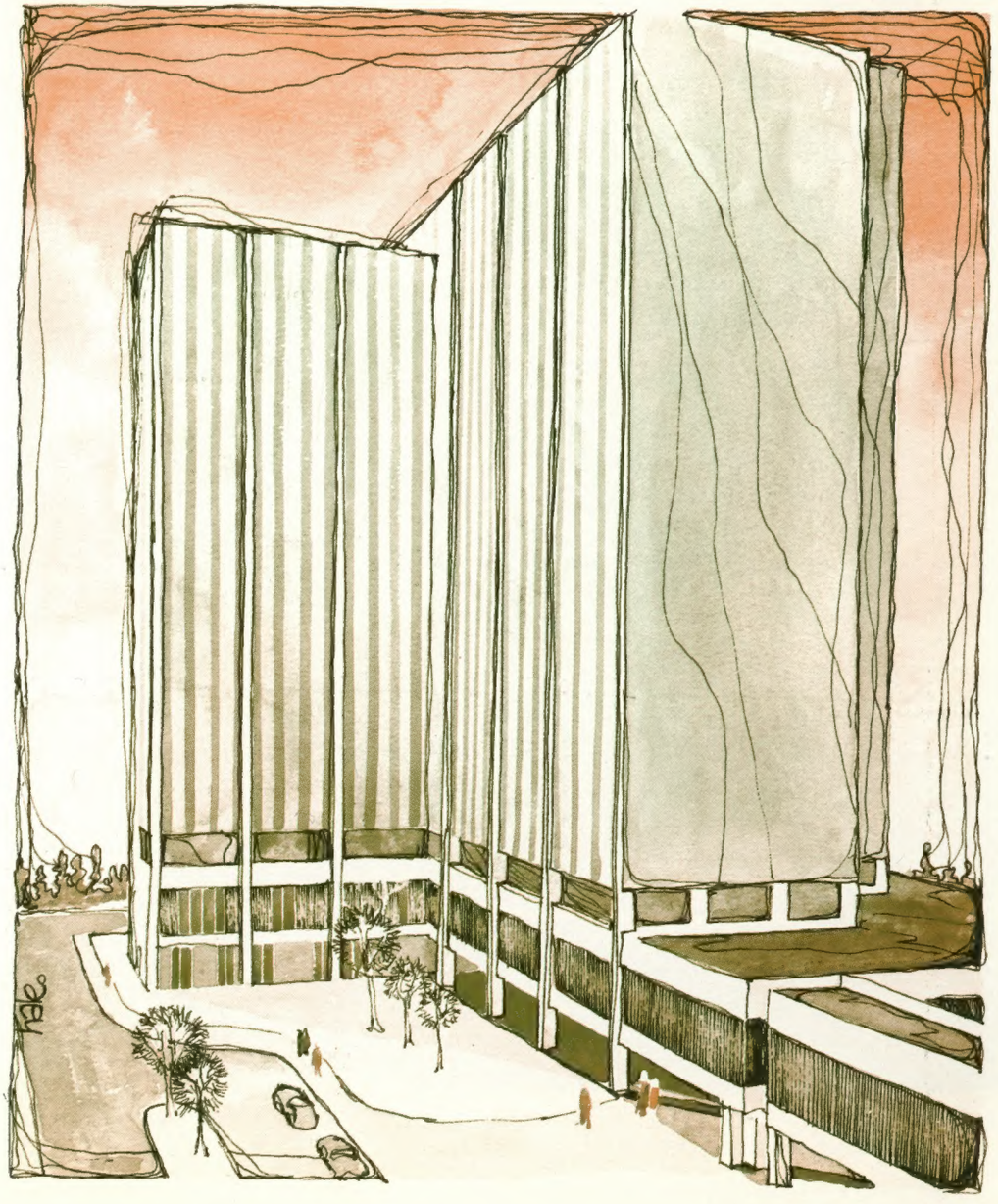


FEBRUARY 1970

THE NEW TRAIL

THE UNIVERSITY OF ALBERTA MAGAZINE



COVERS: *five sketches of the Clinical Sciences Building, the new home of the Faculty of Medicine (see page three) and the first building to be completed in the University's Health Sciences Centre. The sculpture (shown on the back cover) hangs in the lobby. It combines the caduceus, ancient symbol of the physician's craft, with the atomic particles of modern science, and a Canadian maple leaf. Drawings by Frank Hale.*

BELOW: *the Central Academic Building, rising like a winter moon on the site of the old "Hot Caf" (see page 34). Behind it is the Donald Ewing Cameron Library, to the left the Henry Marshall Tory Building, and at the right the "South Lab." Photograph by Forrest Bard.*

THE NEW TRAIL

THE UNIVERSITY OF ALBERTA MAGAZINE

Volume 26, Number 4 February 1970

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The New Trail

The University of Alberta, Edmonton, Alberta

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On (and off) the Trail

As this issue of *The New Trail* goes to press, The University of Alberta is bound up in one of the most serious fiscal crises in its history, the result of an apparent shift in the provincial government's priorities respecting higher education. The grant per student is much less than might seem reasonable even during a "war on inflation."

The devotion of many people has gone into building this institution into something good, believing that a really excellent university would add more than anything else to the economic and intellectual wealth of this province. Ten years ago this was a good undergraduate campus; now it has come to be regarded as a great university, one of the three or four best in Canada. The Faculty of Medicine (featured in this issue) is a good example of this excellence, but there are few faculties or departments here that do not attract scholars and students from around the world. For a university in a relatively remote city this in itself is an accomplishment. A sharp budget cut at such a time of growth necessarily strikes at the University's core.

The core of any university is its students. In the long run, they will be hurt the most. As a means of staying within our straitened budget, restrictions have been set on the hiring of new staff. Other areas, such as the Library (which is in fact the laboratory for students in the humanities and social sciences), are being asked to make do with considerably less than they need. In September, there will be 2,000 more students than there are now—about 20,000 altogether. The financial difficulties will mean a worsening of some of the University's least desirable features: classes will become even larger, particularly in junior courses; burdens on faculty time will increase still further, so that students will receive less individual attention; and the imbalance between library resources and the requirements of borrowers will deteriorate. We are in danger of lapsing into the depersonalized university we have struggled not to become, a place where minds are processed, not educated.

Government assurances that these are only temporary measures to curb inflation give scant comfort when one considers the human issues at stake. Regardless of how long they last, restrictions on the operating budget of any educational institution permanently damage the learning and the lives of those who are students while they are in effect. Unfortunately, this fact seems not to have stirred public concern at a time when the University, and indeed all levels of the educational system, needs public support if the government is to be encouraged to invest in education at a more reasonable level.

The moral support of alumni and friends is what the University needs now more than anything else.

William Samis

Articles compiled by
Jeanette Rothrock

Drawings by Frank Hale

Macdonald Hotel
Legislative Buildings

High Level Bridge

Rutherford House

Arts Building
"North Lab"

Convocation Hall

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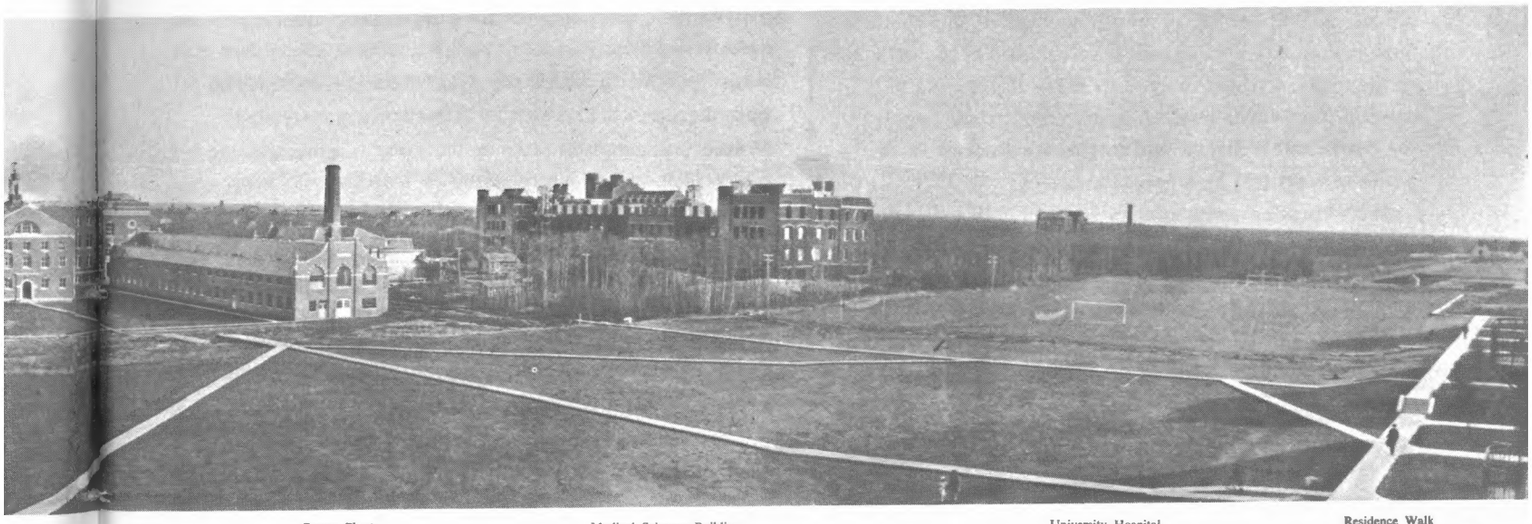
Medicine in the health sciences

When the Health Sciences Centre at The University of Alberta is complete, it will be one of the most advanced medical facilities in the world. Already the Faculty of Medicine is taking on a new look, seeing itself more than ever before as part of a team with a common concern for total health care. New teaching techniques are being used, new emphasis placed on students from all the health sciences working and learning together. New fields like nuclear medicine are being explored in the laboratory, and computers harnessed for the hospital, while the struggle continues in areas like cancer research and organ transplantation. The Faculty is moving out into the community too, bringing health care to the isolated regions of the North, developing methods of thorough and economical care for local family clinics, and providing opportunities for practising doctors to keep up with the torrent of new knowledge.

In this issue, *The New Trail* presents a special report on the Faculty of Medicine and its place in the health sciences.



Power Plant "South Lab" | Medical Sciences Building | University Hospital | Residence Walk South wing of Athabasca Hall

During the 1920-21 session, when this perspective of the campus was taken, the Medical Sciences Building was still under construction. It was built to accommodate the Faculty of Medicine, which had decided finally to offer a full five-year MD program. About this time Frank Mewburn (see page 20), the crustiest pioneer doctor in the West, joined the staff as Head of the Department of Surgery.

New directions in medical education

By Walter C. MacKenzie

One of several clearly identifiable trends in medical education today is the increasing involvement of medical schools in the delivery of health services to the community. Such community involvement is recognition of the obligation of the medical school to conduct research into and to develop innovative, creative, and cost-effective systems for health care delivery, and to prepare students in the health care delivery systems of the future.

The increasing complexity of medical care today requires a greater sharing of responsibility among many professionals for the diagnosis, treatment, and rehabilitation of patients. Already the balance of community practice is shifting from the individual practitioner to larger professional groups based in regional medical centres where complex diagnostic facilities, subspecialty services, intensive care, and special rehabilitation programs can be provided. More and more the public are going directly to the medical centre or community hospital for emergency care or investigation and treatment, attracted by the special facilities and services that exist only in such large centres and hospitals. It is becoming increasingly difficult to prepare the individual practitioner to cope effectively with the health care needs of the community.

There is an increasing demand for medical services arising not only from the rapidly expanding population and the newer aspects of health care, but from the rising proportion of patients in the older age group with greater need of medical services, the increasing number of patients with chronic illness (who survive by virtue of special and sustained medical care) and the rising health expectations of the public.

Because there is a limit to the educational resources which can be provided in Canada to train health service personnel, we must set out a distribution of responsibility between specialists, family doctors, and paramedical personnel, which will provide the highest quality of health care to the largest possible proportion of the population in the most efficient and economical way. We in The University of Alberta are attempting to revise training programs for health science personnel to conform to a new division of responsibility for each group and in so doing to give consideration to the appropriate number of each required to meet the needs of the community.

The undergraduate medical curriculum which has been under detailed study for some years now has undergone a major revision. Our Faculty Council recently approved an entirely new approach to undergraduate medical education. This new curriculum emphasizes teaching conducted by "systems," that is the heart, respiratory, neurological, gastroenterological, etc. We have introduced clinical exposure very early in the program and have established elective periods in which the gifted student may study in depth the subjects in which he is particularly interested. Because we do not all learn at the same rate the average student may use his elective time to keep up with a normal program. We are attempting to produce a type of doctor prepared for tomorrow's needs. We are anxious to have him learn to use the skills of other health personnel in the overall care of the patient. When health science personnel are trained together they will learn each other's capabilities and will learn to co-operate and work together in their community effort.

Our Division of Research in Medical Education has assisted our staff in improving their teaching and is studying the effects of newer educational devices including television and the computer in the learning process.

Another clearly established trend in medical education is the increased attention to continuing education of physicians. The explosion of new knowledge and the accelerated rate of change of existing knowledge demand a different type of educational experience for physicians

with increased dependence on each other and on special programs of continuing education.

Medical schools in the future will find themselves facing almost as much emphasis on the continuing aspect of medical education as on the four years leading to the MD degree. This development will require the practicing physicians to have more direct and frequent access to a medical school than in the past.

For several years the Division of Continuing Medical Education has been a very active part of the medical school. Walter Yakimets assumed the directorship of this division on April 1, 1969. Each year the division promotes seven "on-campus" programs covering subjects in all disciplines of medicine. Regional conference programs are conducted throughout the province and this year twenty-one regional conferences were set up and directed by the division. In co-operation with radio station CKUA we organized twenty-one radio seminars last year, and we find that practitioners throughout the province look forward with anticipation to these weekly programs.

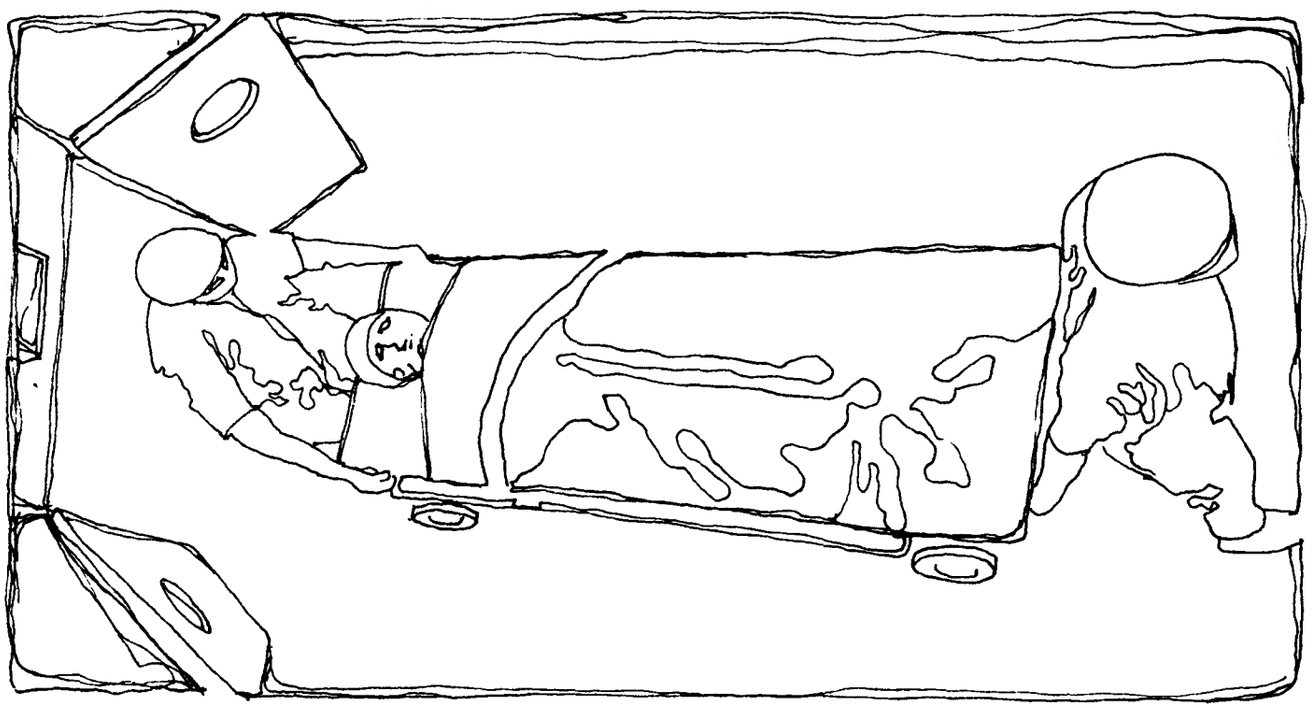
The most serious problem facing the Faculty of Medicine today is the phenomenal speed at which advances in knowledge demand changes in our programs and also the demand for facilities to accommodate them. Reflecting our response to this demand The University of Alberta Health Sciences Centre opened the Clinical Sciences Building in May, 1969. This building provided, for the first time in the history of the school, space and facilities for the clinical departments of the Faculty of Medicine.

The next addition to the Health Sciences Centre will be the first phase of the Basic Medical Sciences Building, which will be under construction early in 1970. When this facility is available we will be able to substantially increase our intake of students into the first year of Medicine.

There has been an increasing response by medical schools in North America to the challenge that they assume responsibility for postgraduate medical education programs. For many years these programs have been hospital based and universities had little responsibility in structuring or directing them. However, at The University of Alberta medical school we assumed this responsibility as early as 1947, under the competent chairmanship at that time of Mark Marshall. Richard E. Rossall has continued to co-ordinate activities in postgraduate training and we now have established a Division of Postgraduate Medical Education in which all those taking graduate training in clinical specialities will be registered as graduate students in the Faculty.

In 1969, over 68 per cent of those who had been clinically trained in Alberta were practicing their specialty in this province, and at least five of the sixteen graduates now in training in the United States intend to return to Canada after completing periods of research experience in American centres.

Our research programs continue to attract increasing support from national and international granting bodies in competition with all health science faculties in North America. All of our medical school departments have



increased their rate of successful applications for extra-mural research support during the last year.

For some years the students of the Faculty have been active participants in curricular study and revision, and in the last two years there has been student participation in all Faculty policy and programs. Students have been regular members of the Executive of the Council of the Faculty, the Council of the Faculty itself, the Admissions Committee, the Curriculum Committee, the Users Committee for New Buildings, and the Examinations Committee. They have contributed to all areas of Faculty endeavor in a very meaningful way.

The Department of Community Medicine has a continuing function to extend the activities of the medical school into the community. This has been carried out through our Family Practice Program, through our close liaison with the Charles Camsell Hospital, and the Northern Affairs Medical Services. A new venture, the Student Health Involvement Project, has developed in the field of community service. This student-initiated-and-organized project provides basic medical and health advisory services to an economically underprivileged area of the city. The students have, through direct negotiations with voluntary agencies, acquired premises at a nominal rental in the district. They also have arranged for nurses in public health training, senior law students, social work students, and a graduate student in sociology to provide consultative and referral services in their special fields. While staff members and departments of the medical school have contributed equipment and have acted in an advisory capacity, the important factor is that the initiative and day-to-day running of the project is a student responsibility.

The University of Alberta medical school is making a contribution to the careful study of various methods of providing health care; it is participating in the World Health Organization International Health Care Study, and completed its field survey in the Grande Prairie County in the summer of 1969. The Faculty recently received approval to carry out studies on air pollution. This study will be of special interest to those in this field of research in Alberta, and it will not only provide quantitative health data of an unpolluted region, but the study will be the first to study attitudes of a population toward this particular health hazard.

The responsibilities of the medical school have expanded and enlarged greatly in recent years. Today it has a responsibility for the education of health science personnel at the undergraduate and graduate level. It has a mandatory responsibility to carry out research in the delivery of health care, and to improve the standard of patient care in the community.

Walter C. MacKenzie (CENTRE) *is a Nova Scotian and a graduate of Dalhousie University and the University of Minnesota. He joined the Faculty of Medicine in 1939. He was appointed Professor and Head of the Department of Surgery in 1949, and Dean of Medicine ten years later.*
D. F. Cameron (LEFT), *BA '47, MD '49, joined the Department of Anaesthesia in 1950 and became Associate Dean of Medicine in 1965.*
L. C. Grisdale, BSc '42, MD '46, has been Assistant Dean of Medicine for Professional and Community Affairs since 1967, and, in addition, is Director of the Family Clinic.

A Centre for total health care

By Ronald Clarke

A quotation from Walter C. MacKenzie, Dean of Medicine, gives the essence of the concept of comprehensive health care:

"The goal of comprehensive care is to make all health sciences services available to the extent that they are needed, and to co-ordinate the efforts of all health service personnel so that no one individual works in isolation, but as a member of a team in full knowledge of the patient's total health picture and with each knowing what the other is doing to improve it."

That is basically what The University of Alberta Health Sciences Centre is all about.

The design of the Health Sciences Centre indicates a new approach to the task of total health care. At a time of increasing specialization in the health sciences, physical and functional unity is an absolute necessity. The Centre will bring together in the same geographical area teams in the various health fields—personal physicians, clinical specialists, dentists, nurses, pharmacists, social workers, dieticians, occupational and physical therapists—so that they may work together in patient care, in education, and in research.

The idea of comprehensive health care will be developed in practice and brought to the service of the community through an Ambulatory Patient Care Centre. This centre, when fully developed, will be quite unlike the usual hospital out-patient department. It will combine family clinics such as the one in operation now, preventive and public health care units, a day hospital, and a dental care unit; thus the emphasis is on the patient's long-term general health requirements rather than simply diagnosis and treatment of a particular illness.

The goals of the Health Sciences Centre concern the three interdependent areas of patient care, education, and research. The Centre seeks to improve patient care through the implementation of new techniques in prevention, detection, treatment, and rehabilitation. Many such techniques will be developed through research in the Centre itself. In addition, the Centre will facilitate more concerted interdisciplinary research towards solving some of today's most pressing health problems.

In education, both the quantity and the quality of students in medicine and the allied professions will be increased. One of the primary functions of the Health Care Centre is to provide for the expansion of classes for

The first phase of the Basic Medical Sciences Building is under construction now. The entire building is shown below

new medical and paramedical students, to expose these students to both hospitalized and ambulatory patients and thus to broaden their clinical experience and teach them to work together as a team.

Another function of the complex is that it is a focus for specialization in particular medical fields and a medical centre for the entire province, a place where patients may be referred by their local physicians for specialized diagnosis or treatment.

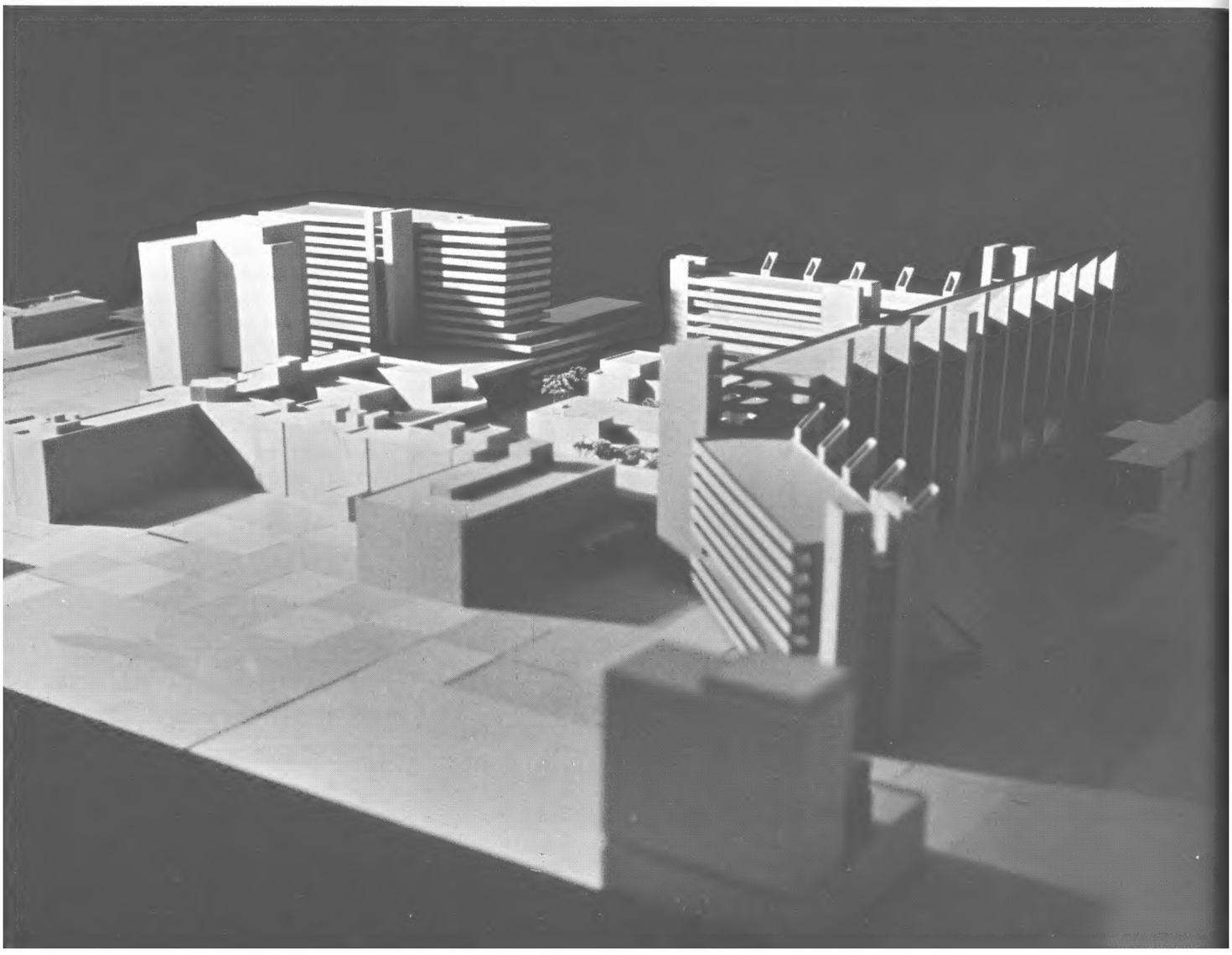
The Centre has both academic and service uses, and it has been designed accordingly. Ultimately, there will be six buildings oriented around the existing University Hospital, and integrated with it so that the entire development can function as a unit.

The first of these six buildings, the Clinical Sciences Building, was opened in May, 1969. This building is joined to the University Hospital at two levels, and provides teaching and research areas for undergraduate medical students, graduate students, and academic staff in the clinical departments—Medicine, Surgery, Psychiatry, Paediatrics, and so on.

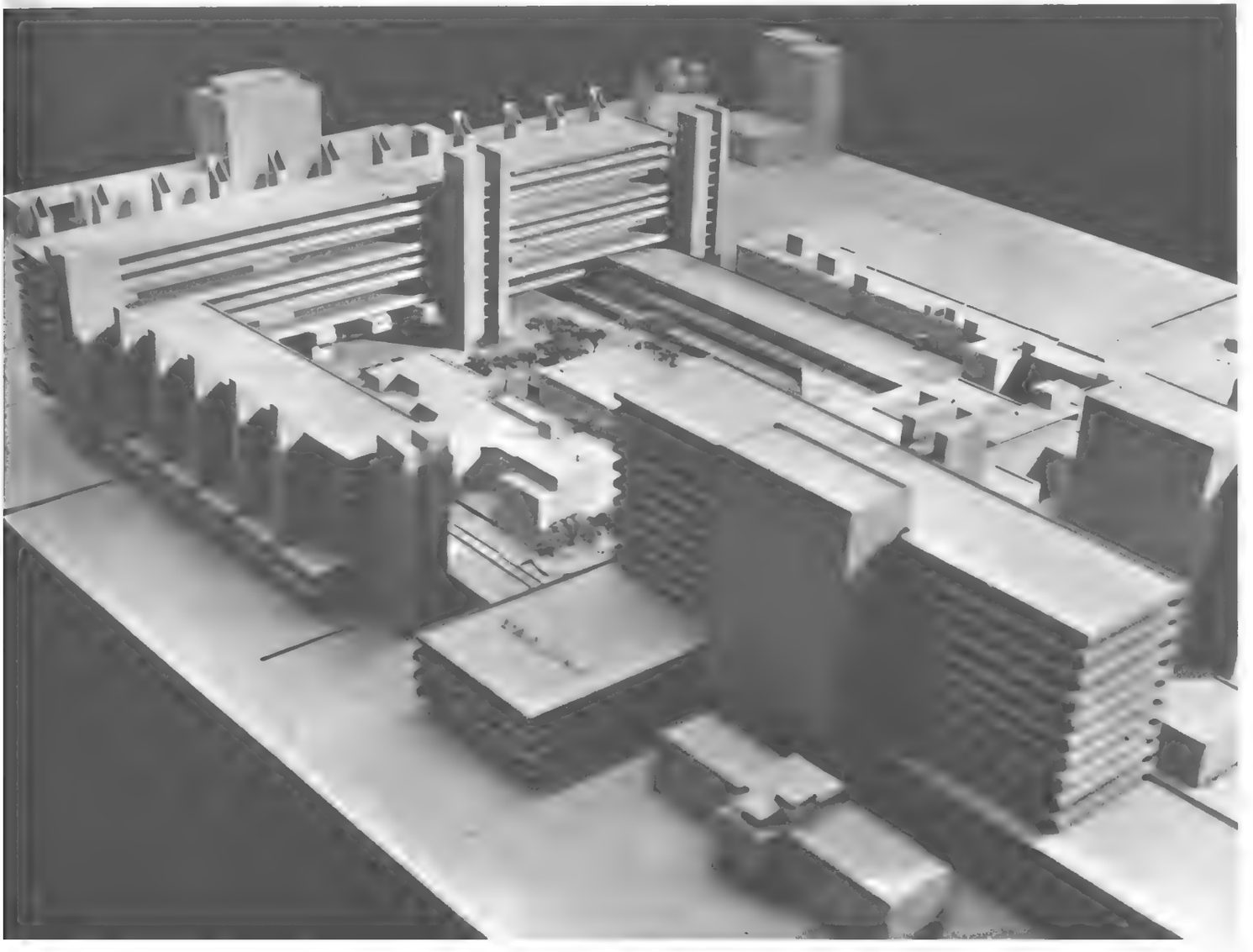
The second structure will be the Basic Medical

BELOW, *the Health Sciences Centre as seen from the northeast. Its neighbors are: Corbett Hall, extreme left; the Research Council of Alberta, extreme right; and the Campus Tower at 112 Street and 87 Avenue, in the foreground. The 112 Street facade of the present University Hospital is shown left of centre. Surrounding it (clockwise from the University Hospital) are: the Clinical Sciences Building (now in use); the proposed Centennial Hospital; the proposed Dentistry Wing; the first wing of the Basic Medical Sciences Building (upper right—now under construction); and the proposed Pharmacy Wing, angling through the present site of the Colonel Mewburn Pavilion.*

BELOW RIGHT, *the Centre as seen from the opposite corner, from the southwest. 114 Street runs off to the left, and the neighboring Education Centre (left) and the Campus Tower (centre) may be identified at the top of the model. The small building in the foreground is the present Interns' Residence. Behind it is the Centennial Hospital and, at the extreme right, the Clinical Sciences Building. The Basic Medical Sciences Building is at left centre; the portion facing the Education Building is now under construction. Beyond the Centennial Hospital are (to the left) the present Provincial Laboratory of Public Health, and (to the right) the proposed Centre Building.*



LEFT, *The University of Alberta Hospital, as it looked after the "new wing" of 1929 (left of entrance) was completed. The original Strathcona Hospital was begun immediately west of the site of this building in 1906 (it is now the Wells Pavilion, and is still in use). The right half of the structure in this photograph was begun in 1913.*



Sciences Building, the first phase of which is in early stages of construction now. The location of the building, between the Research Council of Alberta and the Provincial Laboratory of Public Health and west of the Hospital, will allow communication between the basic medical sciences, such as Anatomy, Bacteriology, and Biochemistry, and the clinical sciences. The building also will provide expanded accommodation for the Cancer Research Unit.

Later, possibly next year, construction will commence for the Centennial Hospital, to be located west of the south wing of the existing hospital and adjacent to the Clinical Sciences Building. Centennial Hospital will house the Ambulatory Patient Care Centre and will provide special treatment areas, while the existing hospital will deal with more generalized care.

The three other additions, Dentistry, Pharmacy, and the Centre Building, will be added later, according to construction priorities for the University as a whole. Following the existing plan, the Dentistry Building will be located in the northwestern corner of the complex so that it will be close to both the Basic Medical Sciences Building and the Ambulatory Care Centre in the Centennial Hospital, areas of special interests to that faculty. Pharmacy will be built on the northeast corner of the complex, a wing extending at an angle from the Basic Medical Sciences Building through the area where the Colonel Mewburn Pavilion of the University Hospital now stands. The Centre Building will be located between the present hospital and the Public Health Laboratory; it will serve as a meeting place for students and staff from all the other areas of the Health Sciences Centre, and will house common services such as communications and audio-visual centres.

The conceptual design of the Health Sciences Centre is under the supervision of a single Project Director so that the architectural theme will be carried through all of the buildings. The design of the Centre is such that it can be implemented in a series of stages, each phase being large enough to function effectively while at the same time satisfying any economic constraints. Any of the components are capable of being phased separately or phased within themselves, and, generally speaking, space within the component buildings is arranged to allow for maximum flexibility. The main thing is that the buildings be situated to allow for close communication among them and to give the sense of an interrelated centre.

From the viewpoint of both staff and students there is a real need for more communication and interaction among all the various health sciences: Medicine, Nursing, Dentistry, Dental Hygiene, Pharmacy, Rehabilitation Medicine, Medical Laboratory Science, and anything else that relates to the total health picture. The whole idea of a Health Sciences Centre is the idea of a community, a community with the common concern for every facet of health.

Ronald Clarke of the Edmonton architectural firm of Clarke Saunders Swinton and Associates has been Project Director of the Health Sciences Centre since 1966. Mr. Clarke grew up in England and was educated in London. He was Chief Architect for the Department of Public Works of the Government of Alberta until 1958, when he went into private practice.

The north-south spine of the Health Sciences Centre parallels the Centre Building (to the left of the picture) and serves as a pedestrian link between the Centre's several parts.

Who are the Health Scientists ?

The rationale behind the Health Sciences Centre is to bring together those disciplines which share a common concern for the health and well-being of the population as a whole. The Health Sciences Planning and Development Committee was created to co-ordinate the work of these faculties and schools in dealing with day-to-day planning and with common problems in education, patient care, and research. Nonetheless, it is an unfortunate fact that the health sciences will continue to be scattered and disparate until the Health Sciences Centre is complete, and that will not be for several years. Another problem awaiting completion of the Centre is the matter of crowded and inadequate facilities, resulting in restricted enrolments in nearly all the health sciences faculties. A prime example is Dentistry, where admission has been limited to fifty first-year students. This means a graduating class of about forty-five. In Alberta (and in Canada) there is only one dentist for every 3,000 people, a poor ratio compared with the United States (1:2,000) and Sweden (1:1,100). The population and its needs are climbing steadily, and until the Dentistry Wing is built, the Faculty simply is unable to keep up. A similar situation exists in the other health sciences at The University of Alberta. A capsule view of these faculties and schools is given below. In a few years, these numbers may be very different.

Faculty or School	*Teaching Departments*	*Degrees and Diplomas Offered*	*Enrolment (1968-69)*	*Instructors (1968-69)*
Dentistry				
DEAN, H. R. MacLEAN, *DDS '28* ASSISTANT DEAN, D. M. COLLINSON, *DDS '58*	Basic Science Operative Dentistry Orthodontics Oral Diagnosis and Surgery Fixed Partial Prosthesis Preventive and Community Dentistry Pedodontics Periodontics Prosthodontics	DDS MSc and PhD in some fields	Full-time Undergraduate: 203 Graduate: 2	Full-time: 29 Part-time: 68
Dental Hygiene				
DIRECTOR, Mrs. M. BERRY MacLEAN		Diploma	Full-time: 46	(included in Dentistry)
Medicine				
DEAN, W. C. MacKENZIE ASSOCIATE DEAN, D. F. CAMERON, *BA '47, MD 49* ASSISTANT DEAN, L. C. GRISDALE, *BSc '42, MD '46*	Anaesthesia Anatomy Bacteriology Biochemistry Community Medicine Medicine and Clinical Medicine Obstetrics and Gynaecology Surgery and Clinical Surgery Ophthalmology Paediatrics Physiology Psychiatry Radiology	MD BSc in Medicine MSc PhD Specialist qualification in clinical specialties	Full-time Undergraduate: 399 Graduate: 87 Part-time: 15	Full-time: 96 Part-time: 397
Medical Laboratory Science				
DIRECTOR, H. E. BELL, *BSc '47, MD '49*		BSc in Medical Laboratory Science	Full-time: 78	(included in Medicine)
Nursing				
DIRECTOR, RUTH E. McCLURE		BSc in Nursing Diploma in Public Health Nursing Diploma in Teaching and Supervision Certificate in Advanced Practical Obstetrics	Full-time: 309 Part-time: 217	Full-time: 13 Part-time: 3
Pharmacy				
DEAN, M. J. HUSTON, *BSc '37, MSc '41*		BSc in Pharmacy	Full-time Undergraduate: 227 Graduate: 25 Part-time: 10	Full-time: 14 Part-time: 19
Rehabilitation Medicine				
DIRECTOR, J. B. REDFORD	Occupational Therapy Physical Therapy	Diploma in Occupational Therapy Teaching Diploma in Occupational Therapy Diploma in Physical Therapy	Full-time: 140 Part-time: 6	Full-time: 12 Part-time: 3

Audiovisual aids to medical education

By R. D. Laurenson

Alfred North Whitehead, in his *Aims of Education,* defined education as the acquisition of the art of utilization of knowledge. His definition declares there is more to education than learning facts, and this is particularly applicable to medical education.

Medical education may be considered in two parts, the learning of facts, and their utilization in the care of people. In medicine the art of utilizing facts is acquired by practical experience: at least that is what we believe, but our understanding of the process is poor. Further comment on this process is not relevant now, but it must be stressed that an important—perhaps the ultimate—aim in medical education is to provide the student with the opportunity to use his knowledge.

It is generally accepted that the ease with which facts are learned is a measure of the success with which they are or have been presented. There are other factors but it is upon the presentation, that is, the exposition, that audiovisual technologists have concentrated their attention, and more and more sophisticated aids are being thrust upon education by an industry that will not relent. By means of superb technology the surface of the moon, mammals of the sea, and the intensity of a political scene have all been revealed vividly and instantly not only to educators but also to learners. Educators are well advised to exploit the ease with which audiovisual aids present facts.

Some instructors, however, will not relent either. They insist there is more to education than the mere use of audiovisual aids. Their concept is correct but it has to be more clearly defined. There is a very great difference between the role of an instructor as a presenter of information

ABOVE, *medical photographer Mense Mense takes pictures for the plastic surgeon who will repair this patient's hand.*

BELOW, *two staff members in the Division of Audiovisual Education assist in taping a program on the tonsil. Programs like this find classroom use in not one, but several of the health sciences faculties.*

and his role as an educator. The former is limited by precise terms of reference, the nature of the information, and how to present it. The latter assumes a much broader, a heavier, responsibility in setting educational objectives and in providing all that is necessary for students to achieve these objectives and to acquire the art of utilizing knowledge. Thus the presenter is concerned with audiovisual aids, the educator with strategy. Instructors who question the use of audiovisual aids because aids do not educate are confusing the two roles.

The lecture is still widely used. Kipling said, "There are nine and sixty ways of constructing tribal lays and every single one of them is right." So instructors who rely on lectures may be justified in their dependence on the lecture. But the lecture cannot be considered an educational experience because the art of utilizing knowledge is not acquired in a lecture. A lecture is simply a means of presenting information. The same information can be presented more clearly with more realism in less time by means of audiovisual technology. It must be emphasized that an instructor exploiting these advantages in his exposition is not relinquishing his role as an educator. He is just improving his role as a presenter of information.

It is then solely with the presentation of information that audiovisual aids are concerned. Clearly the nature of the information determines the audiovisual aid to be used. The decision for or against television, slides, overhead projector, or film as the appropriate aid is not easy, but one thing is certain. After the choice is made the rules for the correct use of the aid must be obeyed. Truly, lectures which are televised are just plain awful.

Audiovisual aids definitely are here to stay. Once they are recognized for what they are, the means to present information, once their potential is realized and exploited, new effective methods of information presentation can be developed that will assist the teacher with his strategy, rather than destroy his definition of medical education.

R. D. Laurenson, a graduate of the University of Aberdeen, is Professor of Anatomy and Director of the Division of Audiovisual Education for the Health Sciences. Dr. Laurenson won first prize in 1968 and 1969 in the Canadian Medical Association's competition for audiovisual aids in medical education.

The Division of Audiovisual Education services the Faculties of Dentistry, Medicine, and Pharmacy, as well as The University of Alberta School of Nursing and the School of Rehabilitation Medicine. The purpose of the Division is to promote the exchange of audiovisual material throughout the Health Sciences Centre, to provide facilities for the use of audiovisual aids, including television, and to develop an audiovisual library.

Carl A. Meilicke is Director of the Health Services Administration Division of the Department of Community Medicine. A graduate of the Universities of Saskatchewan and Minnesota, he joined the Faculty of Medicine in 1966.

Health Services Administration

By Carl A. Meilicke

The Faculty of Medicine's Division of Health Services Administration offers a master's program that is unique in North America, unique in that it offers areas of concentration in hospital administration, nursing service administration, public health administration, and medical care administration. The program represents an effort both to educate health service administrators more efficiently and to train a health service administrator who appreciates the broad scope of health care as well as that particular part of it with which he plans to be professionally involved.

The purpose of the program is to prepare persons for senior administrative positions in hospitals, nursing service departments, and public health agencies. As well, students who major in medical care administration, receive training to equip them to be professional experts in planning and research in the delivery of health care.

To enrol in the program, a student needs a bachelor's degree, adequate marks, and the approval of the Division of Health Services Administration. All students take a common core of material covering the social, economic, and political aspects of health care in Canada, and the application of social science theory and methods to health services administration. Classes specific to each of the areas of concentration focus on the structure, function, and particular administrative problems of that area. The student is also allowed a variety of electives offered either by the Division or by other University departments and faculties, such as Business Administration and Commerce, Sociology, and Economics. The program takes twenty-one months of study, research (for a thesis is required as well), and field work experience.

The program was supported for its initial three years (1967 to 1970) by the W. K. Kellogg Foundation. The Foundation's support was given so that it would become the major university-based facility in Western Canada for teaching, research, and community service in health services administration. The future growth of the program will bring continuing education activities, the training of PhD students, and substantial involvement in the undergraduate education of students in health related faculties, such as Nursing, Pharmacy, Medicine, and the other health sciences.

Biomedical engineers and nuclear medicine

The University of Alberta is setting up one of the best-equipped nuclear medicine facilities in Canada, according to T. R. Overton, Associate Professor of Biomedical Engineering.

One of the tasks of the Biomedical Engineering Unit is to study the flow of blood as it passes through all areas of the heart muscle, to detect (by a lack of blood flow in a particular region) exactly where the heart muscle is damaged.

"It's impossible to measure the regional blood flow through human heart muscle at the moment," said Dr. Overton. "Doctors may know there is something wrong with a patient's heart muscle, but they don't know how much of the muscle is involved or how serious the problem is." The University's Biomedical Engineering Unit is helping cardiologists to solve that problem.

Similar techniques are being used to study the functioning of lungs on a regional basis. The Unit is one of the few places in North America which is able to study how specific areas of the human lung are ventilated and how well these areas are perfused with blood. Initial experiments already have been done, and eventually the research program will be expanded to allow testing of patients who suffer from asthma, chronic bronchitis, or emphysema.

The patient breathes normal air containing a small trace of radioactive gas through a spirometer. The spirometer controls the air he inhales and captures the air he exhales. Meanwhile, radioisotope detectors look at regions of his lungs as the radioactive air passes through them. Information gathered by the detectors then is collected instantly for computer analysis.

"Scientists can use computors coupled to radiation detectors to trace and analyze radio distribution almost anywhere in the body," said Donald Fenna, Director of Computer Services for The University of Alberta Hospital and the Health Sciences Centre.

The flow of blood through the heart, for example, after being traced by a gamma camera, is recorded and then analyzed in detail by computer. Various pictorial and tabular representations of the heart can be produced for the physician. The speed of the computer allows this to be done simultaneously with the examination.

In an animal experiment, a radioactive solution is injected into the coronary artery. The gamma camera "sees" the radioactive material as it flows through the heart muscle by means of the gamma particles emitted. The camera counts the particles every tenth of a second (it can count up to 20,000 particles in that time) and a "picture" of the heart is taken for every heart beat, with a total of about thirty to forty pictures accumulated during one examining session. While all this is happening, the computer records this and other information. A special Polaroid camera takes a photograph of the derived image of the heart with all gamma particles collected.

Dr. Overton said that the new gamma camera is a far better diagnostic tool for this type of work than the rectilinear type of scintillation scanners that have been in use, here and elsewhere, for several years. The rectilinear scanners can observe different locations only at different times. The gamma camera, on the other hand, can observe over a thousand locations simultaneously, within an area of one square foot.

Information collected on the unit's small computer can be played back into the University's giant computer system, the IBM 360-67, for further analysis where this is necessary. New graphical display equipment being connected to that machine opens further exciting avenues for computer use in medicine. This utilization of the gamma camera with the computer and particularly the graphics system, said Dr. Overton, is possibly "something no one else is doing yet in nuclear medicine."

Neonatal intensive care

By W. C. Taylor

Over the last ten to fifteen years the outlook for certain life-threatening diseases has been much improved by intensive individualized medical attention for patients with these diseases. An obvious example is the care of patients suffering from heart attack or coronory thrombosis. Most large hospitals now provide intensive care units for such patients, where the patient is under constant nursing and medical supervision, and vital body functions are monitored constantly by electronic recording devices. These devices alert the attendants to any change in the patient's condition so that immediate action can be taken if needed.

This concept of intensive care has spread to other areas of medicine and one of its latest applications is in the field of newborn care.

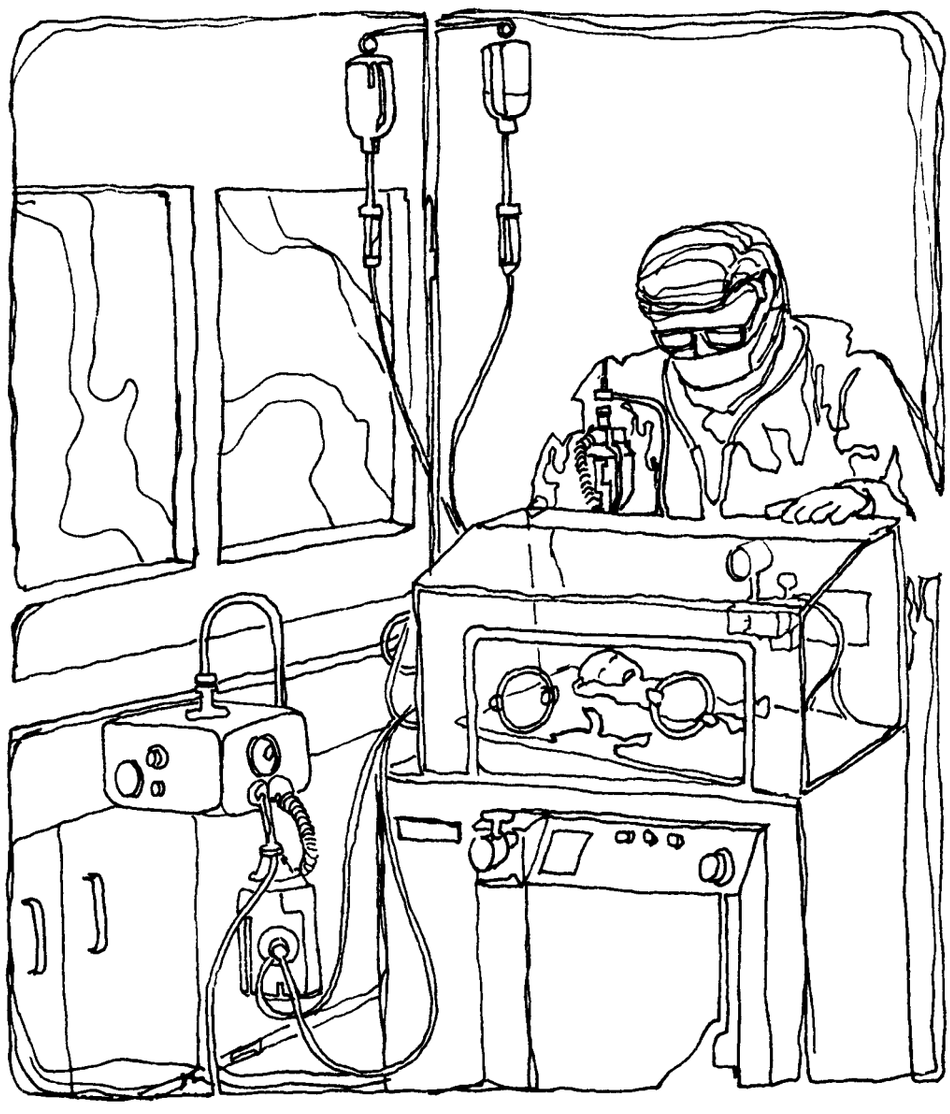
The period of life immediately preceding and following birth is one filled with formidable dangers. The two major hazards are premature birth and respiratory distress, a condition which frequently develops in premature babies. The care of premature infants is a particular challenge, requiring the use of incubators to give the baby warmth, oxygen, and moisture. Good nursing care always has been important for premature babies, and until about ten years ago the efforts of the nurse probably were more important than those of the physician in saving the lives of these fragile infants.

Respiratory distress was a dreaded complication of prematurity with a very poor prognosis until 1959, when Robert Usher of Montreal developed a treatment for this condition. The treatment consisted of the administration of intravenous glucose to provide the baby with much needed energy, and intravenous bicarbonate to combat the lethal accumulation of body acids. Usher's routine of intravenous fluids now is recognized as a life-saving measure and is used in some form or other by almost all large neonatal units throughout the world.

Another procedure which has improved the outlook for babies with respiratory distress is assisted respiration with some type of respirator. Because of the small volume of air which the newborn infant breathes these respirators have to be extremely sensitive and require considerable skill in their use.

The present-day management of babies with respiratory distress requires detailed monitoring of blood oxygen, blood acid, body temperature, respiratory rate, cardiac rate, and so on. Treatment with intravenous fluids and assisted respiration is dependent almost entirely on the results of intensive care facilities and a team approach for the management of sick newborn infants. The most important person staffing the intensive care nursery is the skilled nurse. Her role is even more vital than it was previously because it requires the regulation of intricate equipment as well as the skilled management of the baby. Also involved in the team are paediatricians, cardiologists, pulmonary physiologists, and laboratory and X-ray technicians. The type of equipment required includes special respirators, blood gas analysis machines, portable X-ray equipment and electrocardiographs.

The Neonatal Intensive Care Unit at The University of Alberta Hospital now looks after about two hundred babies a year born in the hospital. About sixty babies are transferred to the unit from outside hospitals, often as far as three hundred miles away. The most encouraging feature of this approach to treatment for sick infants is the significant reduction in mortality which has resulted. It is earnestly hoped that among surviving infants the incidence of harmful sequelae such as brain damage and intellectual disorders also will be reduced.



W. C. Taylor, a graduate of the University of Aberdeen, joined the Department of Pediatrics in 1959 and for a year (1968-69) served as Acting Chairman of the Department. He is Director of Nurseries in The University of Alberta Hospital.

Computers in medicine

Computers are penetrating the field of medicine as they are so many others. Staff of the Faculty of Medicine use them for studying health service utilization in a community, assessing the efficacy of treatments for a particular disease, analyzing data from electrocardiograms and other scientific investigatory tools, studying the physical and chemical processes in body cells, and simulating body functions.

The main computer used by the Faculty is the central computer for the University, housed with the Department of Computing Science in the General Services Building. This is used in two distinct ways, one wherein the user sends his data and programs over by hand and receives his results the same way some time later, the other using a typewriter connected to the computer by telephone line. With the latter the staff member can have his program assembled by the computer immediately as it receives each instruction and can have data processed as it is typed at the user's terminal.

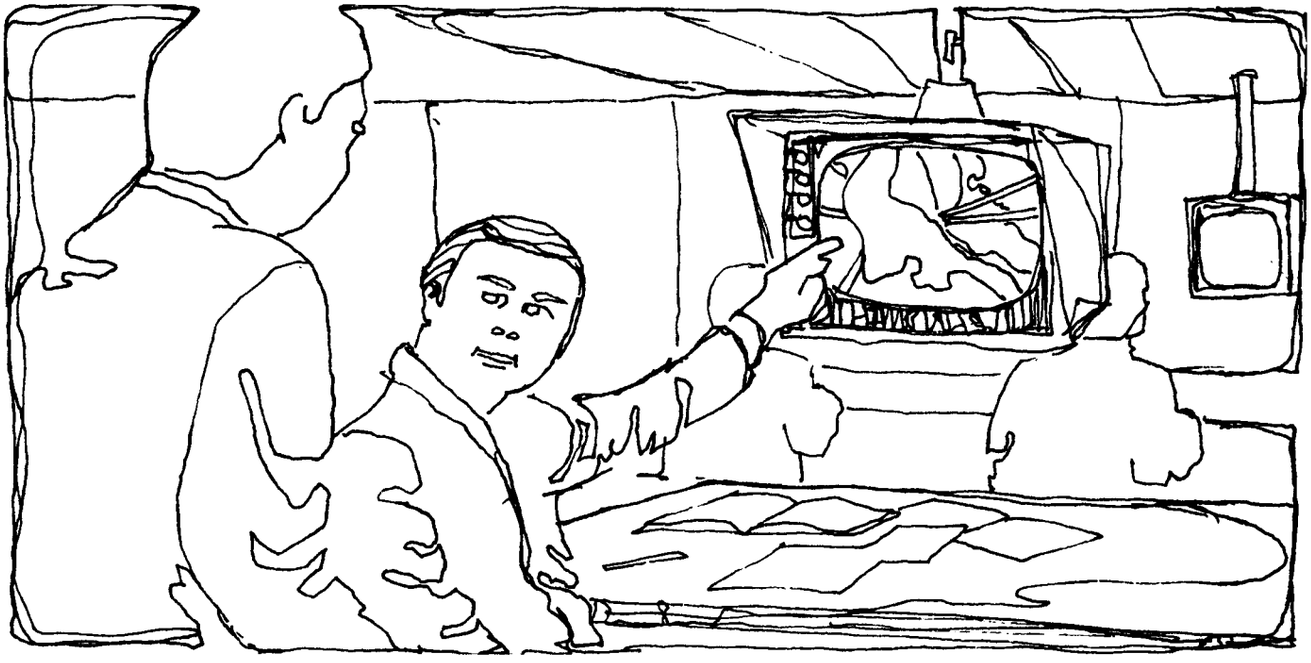
Although of great capacity and power, and appropriate for most calculations arising in the medical field, the main computer is not suitable for connection to laboratory and clinical instruments.

To meet the need in applications of this type the Faculty has several small computers of its own. One is incorporated in a scinitillation counter, where it performs the calculations involved in the discrimination and measurement of the various isotopes used. Two others are installed in the Departments of Physiology and Psychiatry for local experiments, both concerned with physiological functions, one at the cellular level, the other in clinical situations.

Another computer is operated jointly by the Division of Biomedical Engineering and the Co-ordinator of Computer Application, two recent additions to the Faculty organization concerned with the application of new technologies to traditional medical activities. This computer is used for several clinical and laboratory studies being conducted by other departments.

Each of these small computers is equipped with electronic circuitry that allows it to accept, and to measure, the electrical signals from instruments. In this way the computer can know, without human intervention, the skin temperature and electrocardiograph trace of a patient, the voltage in a nerve, or the read-out of a gamma camera. This is of particular value where the signals are varying rapidly, for the computer can accumulate data at a very high rate. It often can go further and analyze that data immediately, thereby giving the medical worker a digest of the situation or even altering automatically some of the controls. Alternatively the computer may be programmed to stimulate the action of some tissue or organ, such as that of a muscle when fed appropriate nerve signals.

In some cases the computer merely brings expedition or reduces tedium; in others it provides for more thoroughness and consistency. More generally, it allows new depth to be gained in the study of biological or behavioral functions.



Continuing medical education

One of the few sure things in this fast-changing world is that "a life-long pursuit of education" is the only way the medical profession—indeed, any of the health sciences professions—can relate the explosion of new knowledge with the practical application of this knowledge towards improvement of patient or family care within our society. To this end, the Division of Continuing Medical Education was established in The University of Alberta as an integral part of the Faculty of Medicine.

Continuing medical education programs existed in Alberta even before the province was established as such. One of the earliest groups involved in this activity was the Edmonton Academy of Medicine, an organization founded before the turn of the century. Annual postgraduate refresher courses were sponsored by the University's Faculty of Medicine, the Alberta Medical Association, and the Canadian Medical Association (Alberta Division) as early as 1932. These were annual three- or four-day courses covering all the various disciplines of medical practice. In 1958 this one big annual course was replaced by five short refresher courses spread through the year, arranged by the Canadian Medical Association (Alberta Division) Committee on Education and the Faculty of Medicine. In 1961 it was resolved that these two bodies establish jointly a position of Director of Continuing Medical Education. Thus the medical profession in Alberta recognized the need to provide a formal organization for this important service.

Through the efforts of Walter C. MacKenzie, Dean of Medicine, The University of Alberta received its first budget for a Division of Continuing Medical Education in 1963. This was an important milestone, for it meant official recognition by both the University and the Faculty of Medicine that continuing education for the medical graduate in clinical practice was just as much the responsibility of the medical school as was undergraduate training.

The success and growth of the program since then has been due largely to the efforts of the program's directors: Samuel Kling, its first director, from 1963 to 1966; Adam S. Little, from January, 1967 to March, 1969; and the present director, Walter W. Yakimets, *MD '59*.

The Division of Continuing Medical Education has adopted as its objectives the basic principles prepared by the American Medical Association's Council on Medical Education and Hospitals.

"The ultimate aim of continuing medical education is to make it possible for each physician to use in his practice the modern medical knowledge that continuously becomes available. Adequate professional growth ensues through the participation of each physician in suitable programs of

continuing education in addition to his own experience and reading. Continuing education programs should . . . favourably augment and modify an adequate initial education. These programs should make possible the acquisition of such new skills in the field of original competence as scientific advances require. All continuing education should strengthen the habits of critical enquiry and balanced judgment that denote the truly professional and scientific man."

While it is the duty of medical educators and leaders to provide the opportunity for continuing medical education, it should be the duty of the practicing doctor to overcome whatever apathy he may possess towards furthering his own medical education.

To facilitate a two-way communication between the Division and the doctors, Alberta was cut into seventeen regions, each with a regional chairman representing the physicians practicing in that area. In 1968 The University of Calgary began its own program of continuing medical education and assumed responsibility for the regions located roughly south of Red Deer.

The Division of Continuing Medical Education sponsors a variety of programs geared to the needs of all types of practitioners. Perhaps the most popular program is the regional conference, which brings the teacher to the students rather than vice versa. There are three or four such conferences in each region during the academic year, and site, time, and topic are arranged through close collaboration between the regional chairmen and the Division. Once a topic has been chosen, the appropriate department in the Faculty of Medicine sends two professors to the community hospital where the conference is to be held. There they serve more as seminar leaders than lecturers, and local physicians present relevant case histories from their own practices for round table discussion. In a sense the conference serves as a travelling consulting service for the difficult cases in the area, and local doctors remain reasonably close to their practices in the event of emergencies. To faculty members it offers an opportunity to learn more about the problems of conducting general practice in a non-university environment.

Another effective method is the on-campus course, primarily a two- or three-day postgraduate course for large groups. Twelve to sixteen such courses are offered each year covering a wide range of subjects requested by general practitioners and specialists alike. The course combines lectures on the topic in general and small study groups on specific matters.

In addition, the Division sponsors clinical traineeships, programs in which individuals who wish detailed instruction are attached to the relevant clinical department in a teaching hospital and receive as much training as is practical in the amount of time available to them. A person who wishes to return to the environment of the teaching hospital but prefers not to confine himself to a single clinical department may utilize the visiting externship program. Finally, radio programs, television programs, reading courses, and mail-outs are used to keep practicing physicians abreast of current thinking and research on special and topical problems.

An awareness is growing throughout the country that continuing education must play an ever more important part in the various professions concerned with family care. This would suggest the need for an all-embracing Department of Continuing Health Sciences Education.

The Family Clinic

The University of Alberta Family Clinic, opened in the fall of 1967, provides medical care and, through arrangements with other health science schools and faculties, comprehensive health care to about 750 families. In 1968 and 1969 students from the Faculty of Medicine and the Schools of Nursing, Household Economics (Division of Nutrition), and Rehabilitation Medicine were participating actively in the program. Renovations in the Clinic itself will make it possible for students of the Faculties of Pharmacy and Dentistry to participate in the program in 1970.

The program has three main objectives from the medical faculty standpoint. Medical students are given an opportunity to participate in the primary care of patients and families under the direction of their professors and thus to get at least a brief exposure to family practice. Until very recently, all of the student's undergraduate experience was with the hospitalized patient and since this represents less than one per cent of the patients physicians see, their idea of medical practice and the medical practitioner was one-sided. They did not have an opportunity to get to know the family physicians or his area of competence.

The second objective is to provide an integrated program so that the students of all the health sciences can participate together in the health care of these families. In this way all students will have an opportunity to learn about the areas of competence of the other health sciences and to learn how each can complement the other in the total health care picture.

The third objective is to conduct research into patterns of health care. As far as Medicine is concerned, it is hoped that improved and more economical ways of providing health care may be developed—economical both from the standpoint of dollars and professional personnel.

Health care for the North

The Faculty of Medicine is participating in a program to provide improved medical care to the residents of communities in the western third of the Northwest Territories.

Under an agreement signed with the Department of National Health and Welfare, Medical Services, staff and senior students will work on a rotation basis both in hospitals and remote areas. The agreement is essentially an extension and formalization of a program in which members of the faculty have been visiting the North over the past four years.

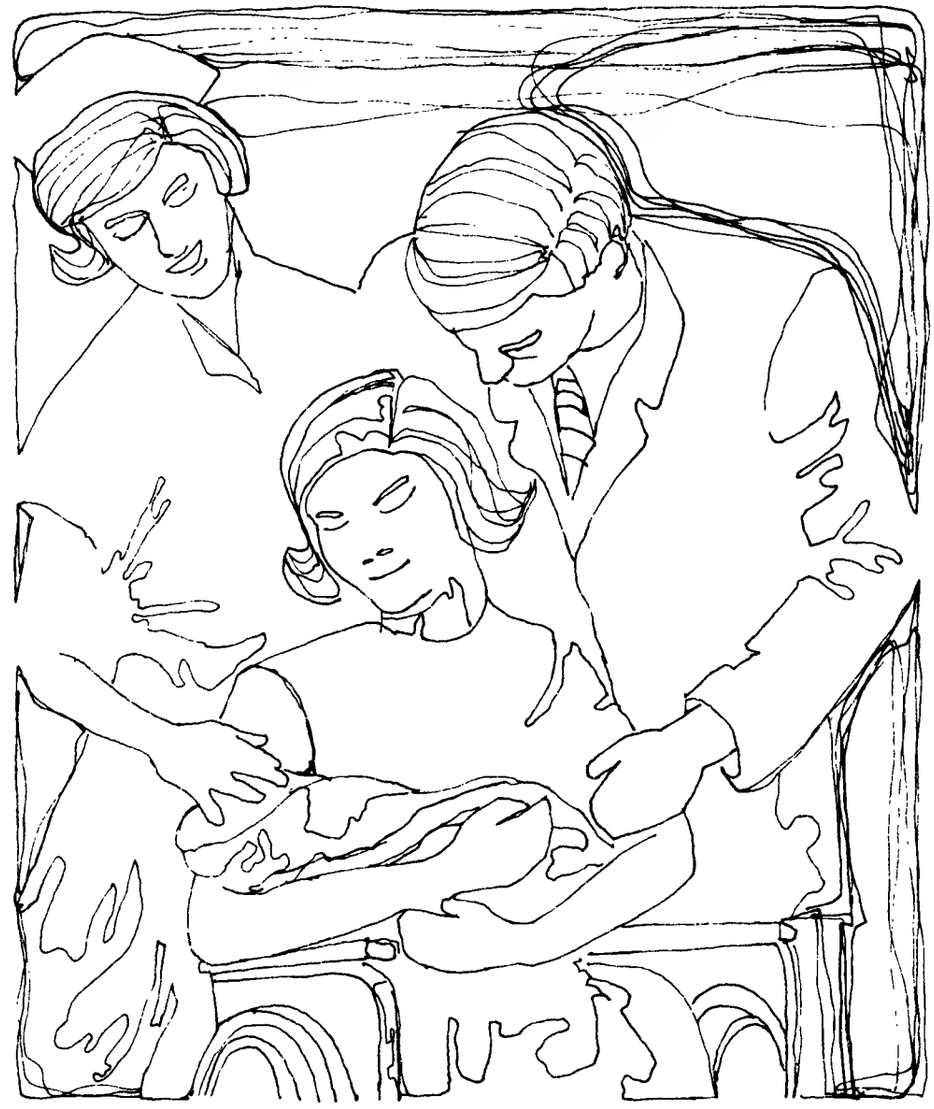
The program will have direct educational benefits for the Faculty of Medicine, according to L. C. Grisdale, *BSc '42, MD '49,* Assistant Dean. It will improve undergraduate and graduate training programs by allowing students to participate in frontier medicine and will provide an opportunity for students and staff to carry out research in the field of northern health care.

G. C. Butler, Regional Director, Northern Region, Department of National Health and Welfare, foresees two main areas of benefit to Northern Medical Services, in that the program will seek the highest feasible quality of health care for the area and will stimulate research into matters affecting the health of the residents.

The work projected for the Inuvik Hospital is typical of the program as a whole. The University will arrange for senior resident doctors in various disciplines to visit the hospital at approximately one-month intervals. During that time the resident will participate in the care of hospitalized patients in his field, in the hospital's out-patient department program, and, if requested, in educational programs for the hospital staff. A member of the Faculty of Medicine will visit the hospital during the latter part of the resident's rotation and consult with the hospital staff and the resident on problem cases. The faculty member also will participate in education programs and will tour outstations.

In addition, students may carry out surveys and other studies for longer periods of time.

The program will be financed by the federal government and administered by the University.



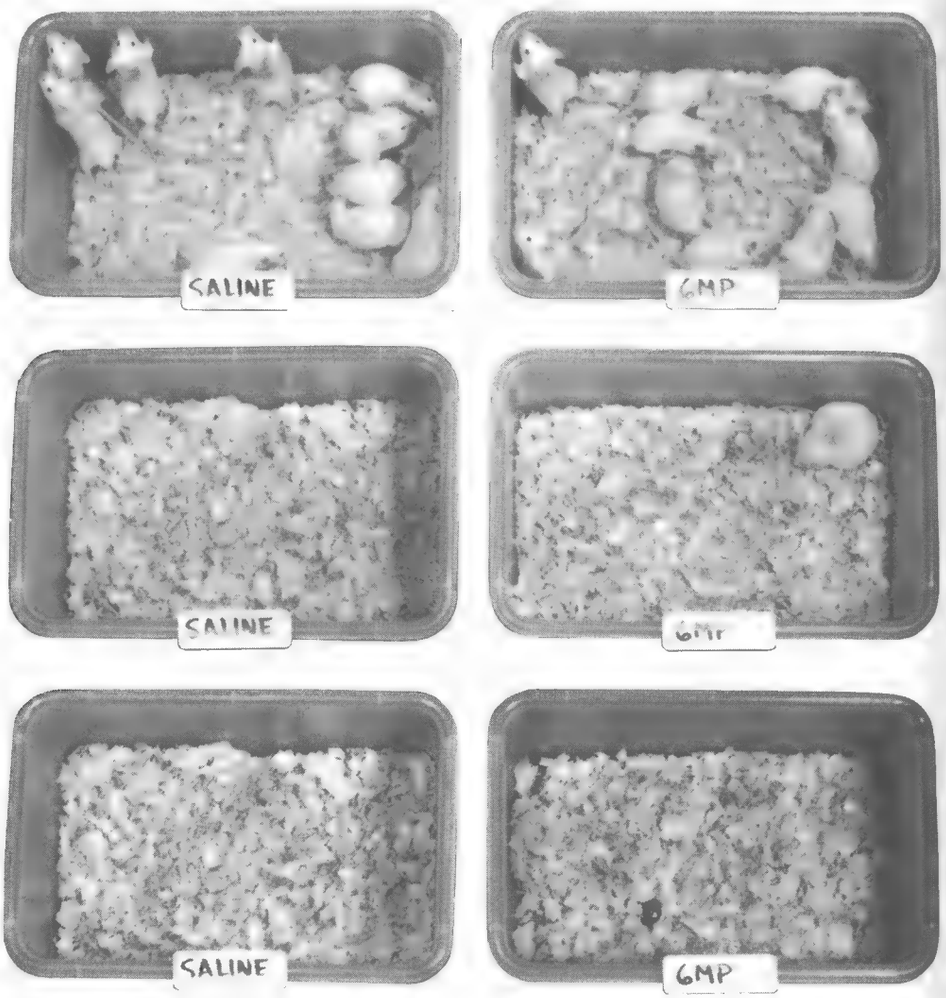
Chemotherapy and the Cancer Research Unit

Since 1963, work at The University of Alberta Cancer Research Unit (McEachern Laboratory) has been devoted mainly to biochemical studies related to the treatment of cancer with certain classes of drugs. Although its research has been confined so far to mouse tumors, more and more work is reaching the point where its applicability to the treatment of human cancer patients can be evaluated. The four members of the Unit staff approach their common interest from different points of view and with different techniques, but with the intention of providing eventually a well-rounded and integrated picture of the drugs and their effects.

The Unit was established by agreement between the University and the National Cancer Institute of Canada, with the latter providing almost all of the annual operating expenses, including salaries. The University provides overhead expenses. The laboratory space itself originally was constructed and equipped by the Alberta Division of the Canadian Cancer Society. The members of the Unit staff hold regular faculty positions in the Department of Biochemistry of the Faculty of Medicine, and participate in undergraduate and graduate teaching activities in Biochemistry and Pharmacology.

Cancer manifests itself in many different ways, and attempts to treat it must be equally complex. At the present time the many forms of surgical and radiological treatment can cure between one third and one half of the patients with cancer, with the best results obtained in those cases which are diagnosed early in the development of the disease. In the other patients these same techniques can prolong life and relieve suffering, but real cures are not effected.

Treatment of cancer patients with drugs which preferentially kill malignant cells is one of the forms of treatment which is being pursued in attempts to help those

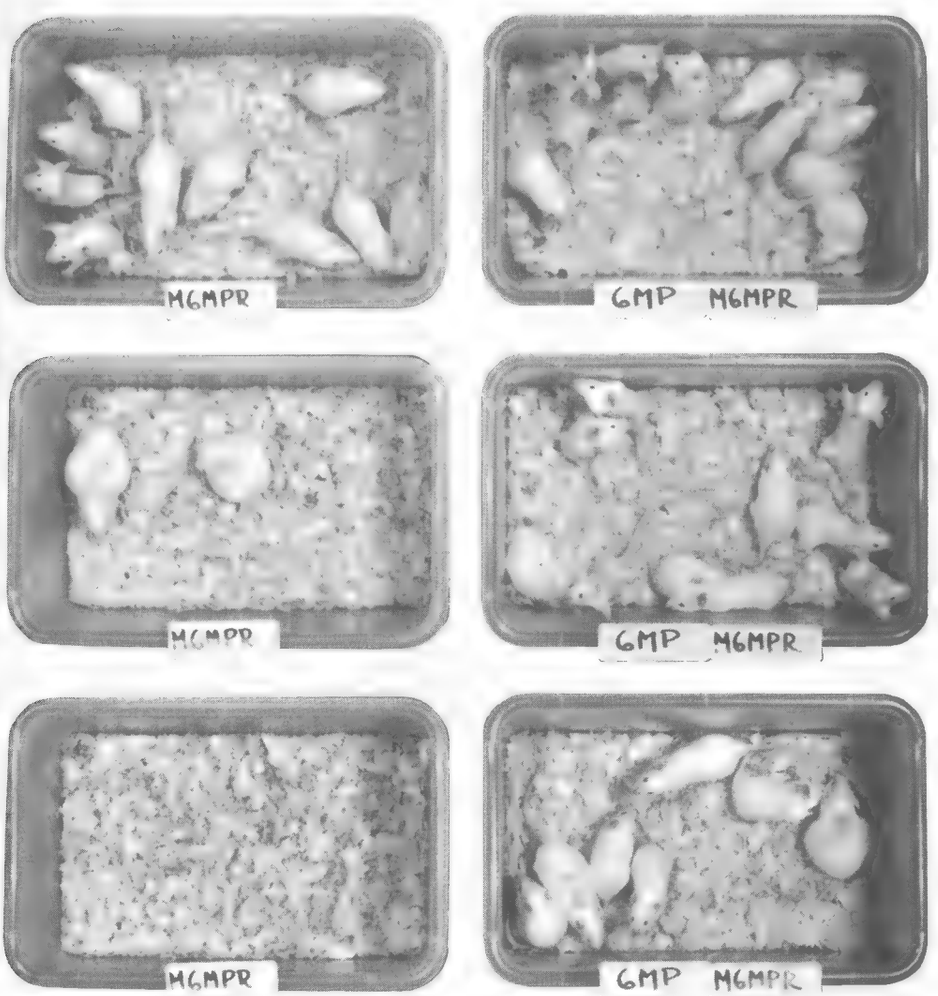


cases in which surgery and radiotherapy are not completely successful. This field, called cancer chemotherapy, has not yet been as useful as the other techniques, and one is entitled to ask why research in this area receives such attention. Basically, the answer is that drugs have been definitely observed to cure some human cancer patients along with several animal tumors. The number of human patients who respond well to drug treatment is still very small, but it does seem to be increasing, and this small measure of success is enough to sustain attempts to extend the benefits to others.

Why does cancer chemotherapy work in only a small number of patients? Can these patients be identified? Can the number of patients who respond be increased? These are key questions, and a good deal of research at the Unit and elsewhere is directed to them. To overcome the problem of variation in drug response among different patients, research must be done to discover why one patient responds while another does not, new and better drugs must be identified, and ways must be found to use each drug in the most effective manner. Most of the answers to these questions must involve rather basic biochemical studies of normal cell function and growth, and require considerable knowledge of how drugs interfere with the intimate details of the cell's biochemical machinery.

The best way to be able to predict whether or not a drug will work on a given patient is to find out exactly how it kills tumor cells without harming the patient's other cells, and then to determine, in particular cases, whether the conditions for its maximum effect are present. This cannot be done without a firm grasp of the biochemistry of cell growth and function in general, a goal which is not yet attained. Therefore, T. Tamaoki and J. F. Henderson direct part of their research to basic biochemical processes in normal and malignant cells to lay the foundation on which drug studies must be based. This is also an area in which J. S. Colter, *BSc '45,* W. M. Paranchych, *BSc '54, MSc '58,* and C. J. Smith are working elsewhere in the Biochemistry Department, using grant funds from the National Cancer Institute of Canada.

Based on this work and that of other scientists all over the world, Dr. Henderson and A. R. P. Paterson then study the biochemical effects of certain chemicals which have been found to be potent inhibitors of tumor cell growth in man or in animals. This is sometimes more difficult than one might think; the biochemical mechanisms of action of some very effective drugs in common use have not been identified after more than twenty years of study. In general, however, this type of study is done by measuring the movement of a small amount of radioactive material

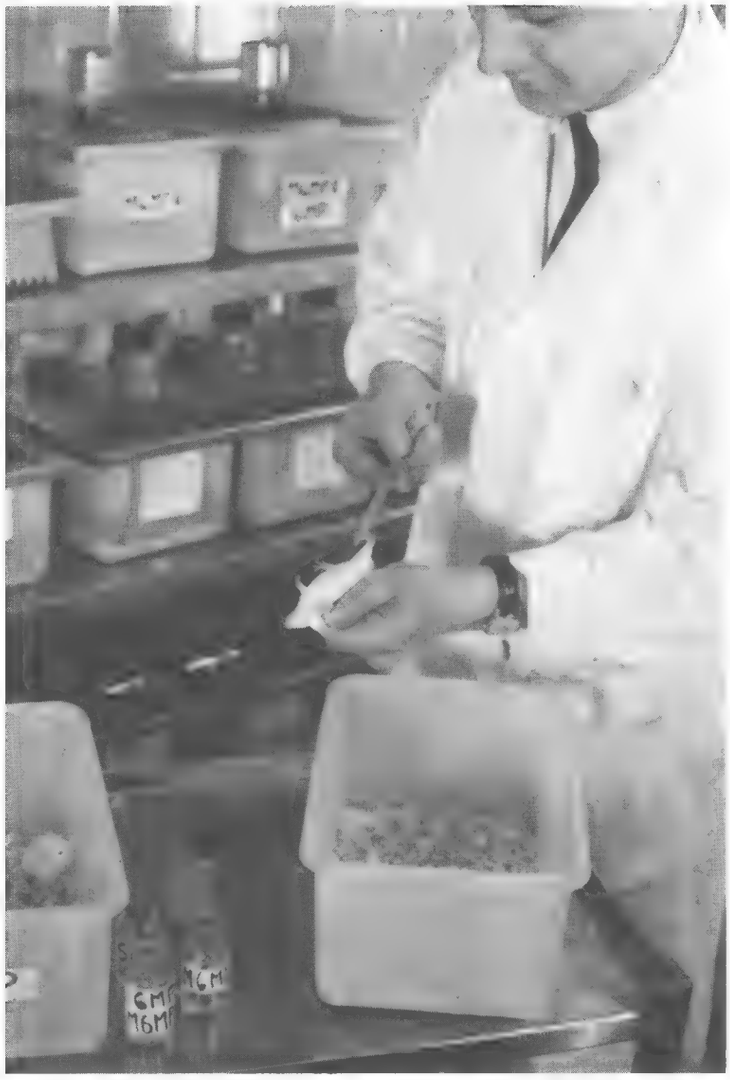


The pictures on these pages illustrate a controlled experiment demonstrating the chemical treatment of cancer in mice.

The three rows of photographs show four baskets of mice on the fifth, twenty-fifth, and seventieth day of the experiment. All the mice had cancer tumors before the experiment began.

The mice in each of the four baskets were injected with a different drug. A control group (the basket on the far left) received saline solution. The second group received an anti-cancer drug, 6MP. The third group received a different drug, M6MPR. Mice in the last basket were treated with a combination of the two drugs. Treatment was given daily for five days, then it was stopped.

The pictures in the first horizontal row were taken on the fifth day (the last day of treatment), and show all of the mice used in the experiment. By day 25 (second row) the mice in the control group have died and only three mice treated with either drug singly remain. But all of the mice injected with the combined drugs still are alive. On the seventieth day, seven of the ten mice which received the combined anti-cancer drugs are still alive. All the other mice have died.



Tumorous mice are treated with many different drugs and combinations of drugs. In time, those drugs which have proven most effective in the laboratory may be used to treat human cancer patients.

through the various biochemical processes of the cell, and trying to identify the point or points at which a drug perturbs the normal course of events.

Biochemical studies on cell growth and function frequently show that certain processes are of particular importance to the tumor cell, and hence might be good places at which to aim drugs. Several different biochemical screening systems have been developed by Dr. Paterson, Dr. Henderson, and I. C. Caldwell to try to find drugs which will attack certain specific reactions. Chemicals to test are obtained at no charge from an agency of the United States government which conducts a massive program to make and test new chemicals as inhibitors of tumor growth. This co-operation between the United States government and the Unit is based on mutual interest rather than on any kind of contractual agreement; this agency has the best supply of new and rare drugs, and the Unit has unique systems of testing them for certain biochemical properties.

In addition to considering the effect of a growth-inhibitory drug on the cell, the effect of the cell on the drug also must be taken into account. This is frequently very important in explaining why certain tumors respond to a drug and others do not. Many drugs must be converted from the inactive forms in which they are administered to active toxic derivatives within the tumor cell itself, for the toxic form often is unstable or incapable of penetrating tumor cells easily. In addition, the rate at which the cells break down the drug may affect the length of time it can act. Tumors seem to be quite variable in their abilities to carry out both activation and inactivation processes, and studies of the relative rates of the reactions may allow classification of individual patients as drug sensitive or drug insensitive. All of the Unit staff include such studies as part of their programs of research.

One way to improve the effectiveness of one drug is to use it in conjunction with a second chemical. Dr. Paterson is particularly interested in this field of combination chemotherapy, and the efficacy of one of the drug pairs he has studied now is being evaluated in cancer patients. Two drugs together may be better than each alone when each attacks different but related sensitive parts of the biochemical machinery of the tumor cell, when one protects the other from destruction, because lower doses of each may be used, or for other reasons. One of Dr. Paterson's research objectives is to discover the biochemical bases for the special beneficial effects of combinations of drugs.

The staff of the Cancer Research Unit are biochemists, not physicians, and therefore they cannot themselves apply the result of their studies to the treatment of human cancer patients. In the past their work has been communicated to those doing experimental cancer chemotherapy on human patients either through publication in scientific journals or by personal contact with physicians who do such work. In the last few years, however, members of the staffs of the University Hospital and the W. W. Cross Cancer Clinic in Edmonton have expressed an interest in collaborating with the Unit to apply the results of basic cancer research done in Alberta to benefit cancer patients in this province. This in itself is a long-term project which is only in its infancy.

Cancer chemotherapy has a long way to go before it can be considered a standard and reliable form of treatment for large numbers of cancer patients. The prospects are encouraging, but a great deal of research, such as that carried out at The University of Alberta Cancer Research Unit, will be required before this goal is attained.

To understand the eye

By T. S. Leeson

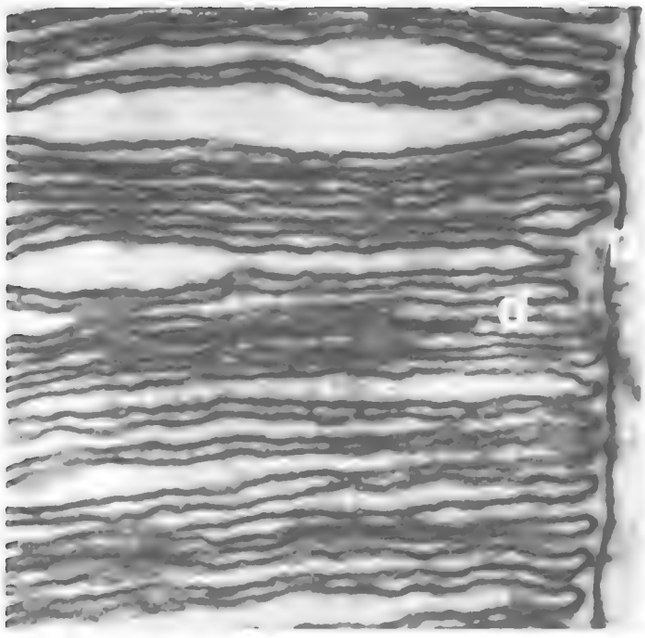
For several years I have pursued a research interest in the eye, particularly the trabecular meshwork, which is the drainage mechanism largely responsible for regulating pressure within the eyeball. This is of clinical significance in relation to glaucoma, a condition which all too frequently results in blindness. More recently I have been interested in the retinal photoreceptor cells. While previous work was restricted to routine light and electron microscopy, last year I received funds from the Medical Research Council for the purchase of a Balzer freeze-etch unit and since that time have used this machine with very interesting results.

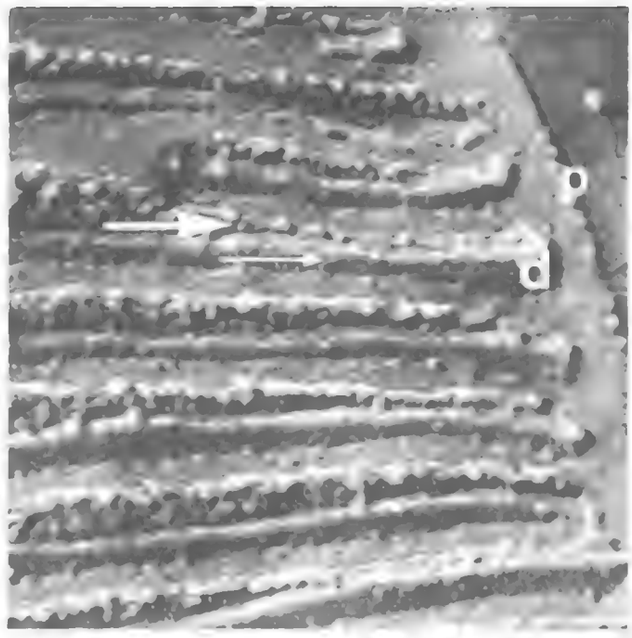
The electron microscope for biological studies has been used primarily in the past to examine thin sections of plastic-embedded, fixed tissue. Such specimens, while extremely valuable, have the disadvantages of requiring chemical fixation and therefore possible artefact deformation, and of being so thin that the specimen is really two-dimensional (see figure 1, on the following page). Both of these disadvantages are eliminated by use of the freeze-etch technique, although this method probably has some disadvantages of its own. (The plastic-embedded specimens are remarkably thin: about 500 to 700 angstroms. One angstrom is one ten-thousandth of a micron, which is one millionth of a meter. The specimen is thus about 0.0000023 inch thick.)

In this technique, small pieces of fresh tissue are frozen rapidly in liquid freon directly or after a brief immersion in some material such as glycerol to prevent ice formation. After storage in liquid nitrogen, the specimen is placed in a chamber which is maintained at -150 degrees centigrade, and the chamber then is evacuated. The specimen now is fractured by chipping with a sharpened razor blade. The fracture passes through the specimen along natural cleavage planes; for example, it may pass along one cell surface for some distance, then pass into the cell cutting various cell components before passing around the nucleus. The operator, of course, has no control over this fracture, although variations in the temperature probably affect the plane of fracture. After fracture, the specimen is "etched" by leaving it at vacuum for periods usually of up to three minutes. During this time, some material "sublimes" from the specimen thus exaggerating the depressions and protrusions caused by the fracture. After etching, a replica of the specimen surface is made by evaporating platinum onto it at an angle of 45 degrees, followed by a carbon evaporation from a source directly above the specimen. The specimen then is brought to room temperature and pressure and the replica is removed from the specimen surface by floating it on water. After being cleaned in enzyme and acid, the replica is placed on a specimen grid with its specimen surface upward and then is examined in the electron microscope. Thus, the actual specimen is not examined: instead one looks at a replica of its surface.

The results are quite dramatic and often very difficult to interpret. As seen from figure 2, the replica is tri-dimensional and many specimens appear to resemble the moon pictures obtained recently by the American astronauts. However, a good replica of a specimen fractured in a useful, identifiable plane contains a great deal of information.

In retinal photoreceptors (cells which receive light stimuli) the cells have an outer segment which is an extension of either cone or rod form containing internally a series of transversely orientated membranous discs or lamellae. In rods, the membrane discs are isolated elements which do not communicate with the cell surface, whereas in cones the internal discs appear to arise by invagination of the surface membrane. In the freeze-etch replicas, the two membranes of an individual rod disc are seen to present two dissimilar surfaces, one relatively smooth facing an interdisc space and one which is rough facing the intradisc space. In rods, the tri-dimensional replicas also demonstrate beautifully that the membrane discs do not communicate with the surface membrane. However, in cones the replicas show that the surface membrane has tranverse slits or depressions, sites where the internal discs communicate with the surface. Also, the fracture faces of cone lamellae differ from those of rods. In many animals, man included, the retina contains both rods and cones, but in some animals only one type of photoreceptor is present. For this study, the rat retina was used because it contains only rods while the ground squirrel contains only cones. By using these two animals, one can be certain that the replica obtained is of a particular cell type.



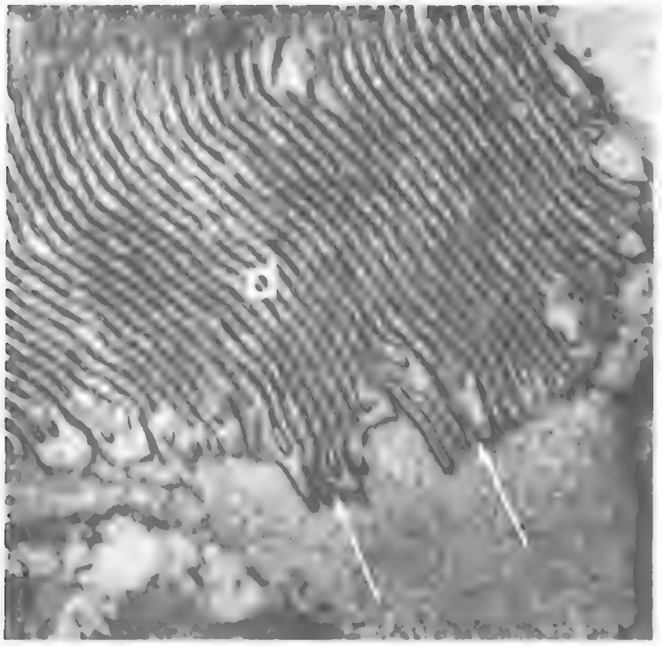


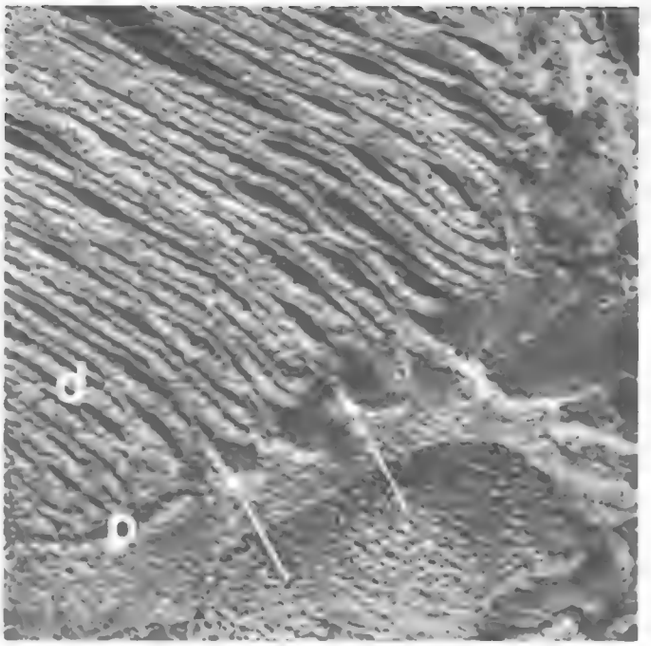
Illustrations on this page show the rods in the eye of a rat. They were prepared, using an electron microscope, by Professor Leeson.

FIGURE 1 (*above*) *shows part of the outer segment of a retinal rod. Note the surface plasma or cell membrane,* p, *and the internal membrane lamellae or discs,* d, *which do not communicate with the surface. Magnification: 85,000 diameters.*

FIGURE 2 (*above, right*) *is a freeze-etch replica of a retinal rod with the fracture transversely across the discs. Note that in each disc,* d, *there is a smooth interdisc or outer membrane surface (broad arrow). None of the internal discs touch the surface plasma membrane,* p. *190,000 diameters.*

FIGURE 3 (*right*) *shows a freeze-etch replica of a retinal rod. Here the fracture shows the convex surface membrane,* p, *of an outer segment, internal membrane discs,* d, *and one disc en face showing smooth interdisc (small arrow) and rough intradisc (broad arrow) surfaces. 100,000 diameters.*





These three electron micrographs are of the cones in the eye of a ground squirrel.

FIGURE 4 (*above, left*) *shows part of the outer segment of a retinal cone. Some internal discs,* d, *are produced by infolding of the surface plasma membrane* (*arrows*). *70,000 diameters.*

FIGURE 5 (*above*) *is a freeze-etch replica of a retinal cone. The infoldings* (*arrows*) *of the surface plasma membrane,* p, *to form internal discs,* d, *are obvious. 130,000 diameters.*

FIGURE 6 (*left*). *This is the same micrograph as in Figure 5, but at more than twice the enlargement. 285,000 diameters.*

T. S. Leeson, a graduate of Cambridge University, has been Professor and Chairman of the Department of Anatomy since he joined the staff in 1963. His research interest focuses on the eye.

Immunology and transplantation

By J. B. Dosseter

During recent years the whole field of transplantation of human organs, the replacement of a diseased or damaged part with a sound one, has excited more popular melodrama and debate than almost any other medical phenomenon of the twentieth century. Transplantation of organs and tissue in general is not a particularly new thing, but a greatly increased tempo of such surgery and the climax of the early kidney and heart transplants in the sixties suddenly stirred the public imagination. The reaction both within and without the medical profession varied from unrestrained enthusiasm to unequivocal disapproval, for although it was possible surgically to install a perfectly functioning organ, the recipient died more often than not because of some unrelated infection.

Gaspare Tagliacozzi, a Bolognese anatomist and surgeon of the late Renaissance, was the first to consider seriously the idea of transplantation, and he rejected it. In 1597 he said, "The singular character of the individual entirely dissuades us from attempting this work on another person. For such is the force and power of individuality, that if anyone should believe that he could accelerate or increase the beauty of union, nay more, achieve even the least part of the operation, we consider him plainly superstitious and badly grounded in physical sciences."

It is this "singular character of the individual" which has caused the failure of so many transplants in the past and which is the challenge that has to be met today.

The first record of a successful human skin isograft was in 1823, when a woman's nose was rebuilt with a free graft from her thigh. Other types of transplantation followed. Corneal allografts were done as early as 1880, although the first generally accepted procedure was not developed until fifty years later. Organ allografts were not attempted until the first decade of this century, when vascular surgery as we know it was in its infancy. Using a method devised a few years previously for repairing arterial injuries, a Chicago surgeon, Carl Beck, performed an experimental kidney transplant. At about the same time European surgeons were experimenting with kidney grafts in animals. One of these was a French surgeon named Carrell, who conducted pioneering studies in blood vessel surgery and limb and organ transplants, both isografts (from the same body) and allografts (from a different body of the same species). He suggested that no biological conclusions could be made from his work "because the interactions of the host and of the new organ are practically unknown." Nonetheless, he was optimistic that one day it would be possible to regularly transplant human organs.

While experiments seemed to work very well with isografts, there was a general failure with grafts from other bodies, whether of the same species (allografts), or a different species (xenografts). In the latter case, grafts simply did not take; in the former, sometimes the graft would take, occasionally a transplanted organ would function, but the host died in a matter of days.

The idea of an immune response to an allograft was first suggested by a German surgeon who believed that allografting always was unsuccessful because of something he called *"transplantationsimmunität."* An actual immunity theory was postulated in the first decade of this century by an English group working under the Imperial Cancer Research fund. Having transplanted a tumor from a mouse to a rat, they found that the tumor was destroyed in eight or nine days; when a second mouse tumor was transplanted into the same rat, it was destroyed in less than half the time. Therefore, they concluded that the rat had developed an immunity to mouse tissue; the same phenomena were later shown between different strains of mice (i.e. within a species). Only in the 1940's was this accelerated rejection reaction shown in a human subject when, during the war, a severely burned patient rejected repeated grafts from the same donor. The controlled experiments and studies that followed this observation, particularly by Sir Peter Medawar and colleagues, form the basis for modern transplantation research.

Now the point has been reached where "the technical ease with which organs or tissues may be exchanged between individuals has exceeded the ability to suppress selectively the adverse immune responses which result in the sickness or death of the transplant." The onus is on immunology, and it is this field which especially concerns the research team of the Transplantation Immunology Laboratory at The University of Alberta.

When an allograft is introduced, the host recognizes the new tissue or organ as foreign and mounts an immune response in an effort to reject it. The cellular proteins responsible for this stimulation are called "histocompatibility antigens," substances present on every cell of the body (except non-nucleated red blood cells) and specific to individuals, though not to kinds of tissue or organs within the individual.

When the lymphocytes have determined that foreign protein matter is present in the host's body, they act as messengers calling for a generalized lymphoid immune response to eject the invader. Specific antibodies and

specifically sensitized lymphocytes are sent out together from the lymphoid system, in the blood, to the location of the foreign protein. It is not fully known how the lymphocytes and antibodies damage a graft, but inflammation develops in the part of the graft directly adjacent to the host's blood vessels and spreads rapidly to nearby tissue, and the graft cells die in the wake of the inflammation.

The problem is to prevent, or at best to interfere with, this immune response. There are three ways of doing this: tissue typing and matching; generalized suppression of the immune response; and induction of tolerance. The two former methods are used jointly in clinical practice at present; the third, certainly the most desirable, has worked extremely well in animals, but has not been produced intentionally in man as yet.

Histocompatibility antigens, like the color of one's eyes, are controlled by gene loci on cell chromosomes and obey laws of genetic inheritance. If the cells contain the gene for a certain antigen, then no response will occur on exposure to that antigen. Thus, a kidney allograft for example from a close blood relative would have a geater probability of success than a cadaver kidney selected at random. Although a living blood relative might be willing to part with a kidney because he has another anyway, he would be less willing to give up his heart or lungs or liver! Therefore it is necessary to develop a means of typing and matching tissues between unrelated individuals.

This can be done in either of two ways. Donor and recipient white blood cells may be grown together for a period of time, usually a week, to see if they are compatible. Unfortunately this is a very slow method and, because it would require better storage techniques than we have at present, it cannot yet be used for cadaver organs. The other method is tissue typing. A computer unit has been set up for this purpose at the University of California at Los Angeles. Using the memory banks of the computer to store information, lymphocytes are classified on the basis of as many histocompatibility antigen groups as are known (thirteen at present, but there remain others that are unknown). The more groups that can be matched, the more likely the graft will succeed; thus, one of the most crucial areas of research is to find new antigen groups to add to the list of the groups already known. The UCLA computer carries tissue type information about some 16,000 individuals, over 2,000 of whom are awaiting kidney transplants at centres in the USA and Canada (including The University of Alberta). When a transplant organ becomes available, the donor lymphocytes are typed and the computer selects patients whose tissue types closely match those of the transplant organ. Medical staff at the centres where these patients are resident are notified immediately that a suitable organ is available. Then it is necessary to choose which patient will receive the transplant. Once this sometimes difficult decision has been made, the transplant organ is flown directly to the appropriate locality and surgery is performed as soon as possible after its arrival.

There remains, of course, the problem of storing organs during tissue typing and matching and transportation. To date, solid organs can be kept viable only for 24 to 48 hours. This is another problem on which staff members at The University of Alberta are working.

However closely tissues have been matched, except for identical twins, the incompatible antigens stimulate an immune response, and this must be controlled. At present this is done by stopping the body's immune responses altogether, whether by surgical means, such as the removal of the thymus and/or the spleen, or by antilymphocyte serum, or by other immunosuppressive drugs. This is a blockbuster technique which inhibits the body's defence against not only the antigens of the allograft, but all foreign antigens as well, so that normally harmless bacteria and viruses (and even cancer cells which ordinarily would be controlled) can assume dangerous proportions and cause the sickness and sometimes death of a patient, even those with a perfectly functioning transplanted organ. Antilymphocyte serum (used by Christiaan Barnard on his heart transplant patients) is somewhat selective in that it preferentially suppresses sensitized lymphocytes, the most dangerous foes of the new graft, more than the antibodies.

The third method is one which has not yet been used intentionally on humans, but which holds great promise for the future. Extensive experimentation with animals has shown that it is possible to induce tolerance within a host, *in vivo,* or its cells, *in vitro,* to a particular foreign antigen by specific exposure prior to specific challenge. By such means the immune reaction is suppressed only for that antigen and the body can defend itself as usual against all other foreign proteins.

Specific suppression of the immune reaction to transplanted organs, tissue typing and matching, and development of storage techniques for solid organs such as the heart, lungs, kidneys, and liver are all absolutely necessary to the success of transplantation in general, and all are in a phase of rapid evolution at present.

At The University of Alberta, a widely co-ordinating Transplantation Research Group is planned. This will be under the co-direction of Dr. Erwin Diener (an immunobiologist of international repute) and me. This group will work on aspects of immunology, especially the mechanism of tolerance induction, tissue typing and matching, organ storage and other techniques. On the resolution of these problems hinges the future of transplantation of human organs.

John B. Dosseter is Professor of Medicine and Director of the University's Transplantation Immunology Laboratory. Born in India and educated in England, he joined the Faculty of Medicine staff last summer. Previously he was director of renal and urological research at the Royal Victoria Hospital in Montreal.

The Colonel

By Jeanette Rothrock
TRAIL *Staff Writer*

"I want to tell you about a great little man," began P. M. Campbell in a 1951 issue of the *Bulletin of the Calgary Associate Clinic*. "Back in the early days of this century, a friend of mine was coming out of a bank in Lethbridge, and overheard a man in the street giving forth a fluent torrent of scathing profanity. The bank was set back from the street, and as my friend advanced toward the sidewalk, he saw the author of the profanity, a small man, roughly but well dressed, whom he knew as a doctor; and another man, roughly but not well dressed, who was shamefacedly absorbing the torrent but making no protest. As my friend approached, [the two men] separated and the doctor fell into step with him. And 'with his cherubic smile,' the doctor said, 'Do you know what that damn fool did?' My friend of course did not know. 'Well,' the doctor said, 'his wife has been sick for a week and he wouldn't call me, because he hadn't paid my last bill. Damn fool!' "

Dr. Campbell is gone now, as is the "great little man" of whom he wrote, and Lethbridge, where they both practiced medicine, is no longer a frontier town. Still, there are those who remember F. H. Mewburn—the Colonel, as everyone called him after his stubbornly distinguished military service in World War I.

Mewburn was a slightly built man, only five-foot-six and a hundred-and-forty pounds, skinny of limb and with a chest flat to the point of being concave (a condition described as a "depressed sternum" in Dr. Campbell's inescapably clinical way). The only thing physically big about the Colonel was his magnificent walrus moustache, but the spirit of the man, flashing from his steel grey eyes and crackling more than occasionally with eloquent abuse, more than made up for his size.

The Colonel was fourth in a line of doughty medical men that started more than two centuries ago and that has continued through his son, H. H. Mewburn, an orthopaedic surgeon, and his grandson, Robert H. Mewburn, *BSc '39, MSc '53,* now in practice in the City of Edmonton.

On January 8, 1765, James Mewburn, yeoman, of Durham, England, apprenticed his young son Francis to one Thomas Hornby for seven years. According to the Indenture Agreement still in the family, Hornby was to "find allow and provide to and for the said Francis Mewburn Good wholesome and sufficient Meat Drink and Lodging fit and convenient for him and also teach and instruct the said Francis Mewburn in the Art Science and Mystery of an Apothecary. . . . " Young Francis agreed on his part to serve his master faithfully and "not to play at Cards, Dice or any unlawful Game or Games or contract matrimony." Thus began the first medical Mewburn. Francis started the military tradition as well, for some years after his apprenticeship was done, he left his practice in Whitby to serve in the Napoleonic wars as a Captain of Volunteers.

Francis Mewburn's second son, John, trained in London and was "honorably noticed" by Sir Astley Cooper upon his graduation. With the familial Mewburn sense of adventure, he emigrated to Canada in 1832, set up practice in York, and, during the Mackenzie Rebellion, volunteered for service in the defence of Toronto. John Mewburn's son, Francis Clarke Mewburn, apprenticed himself to his father at the age of fifteen and finished his studies with a year's course of lectures at Philadelphia. From today's perspective, this seems a somewhat unconventional training, but evidently F. C. Mewburn proved highly skilled and ultimately was awarded an honorary MD from the University of Buffalo. He held up the military tradition in true form through service during the Fenian Raids in 1866.

F. C. Mewburn practiced in Drummondville, Upper Canada, now a part of the city of Niagara Falls, and it was

there that Frank Hamilton Mewburn was born in 1858, the youngest of seven children. He was named for Frank Hastings Hamilton, a close friend of his father and the first Professor of Surgery at the University of Buffalo. In such a family and with such a name, it was only appropriate that he should study medicine.

Frank Mewburn enrolled at McGill in the 1870's. Sir William Osler was a young staff member then, and it was one of the outstanding medical schools on the continent. Mewburn graduated in 1881 and interned at the Montreal General Hospital.

The next year, with a touch of his grandfather's spirit, Mewburn went west. The building of the CPR had caused a considerable boom in Winnipeg, and the twenty-bed hospital that had served very nicely before the railway came proved quite inadequate. Winnipeg General Hospital was built, and Frank Mewburn was hired as its first house surgeon. While Mewburn was a student, Lister's methods of surgical antisepsis were still highly controversial. But, as Mewburn told his classes years later, the experience of a few dozen men injured in railway construction accidents quickly clinched the matter for him, and thereafter, his surgical methods even in the most primitive situations probably would have been approved by Lister himself.

The second Riel Rebellion broke out in March of 1885. Thomas Roddick, one of Mewburn's professors at McGill, was appointed Chief of the Medical Staff in the Field; Roddick converted part of Winnipeg General into a military base hospital and put his former student in charge. The rebellion was crushed quickly, and by mid-summer, when the work of the military hospital was finished, the young surgeon in charge of it had earned his first medal.

That December, Frank Mewburn was invited to come a bit further west to look over the prospects. Sir Alexander Galt's Northwest Coal and Navigation Company had starte mines at a settlement then called Coal Banks (today it is Lethbridge), and the company manager, with a mind to getting a resident doctor for the community, sought out the young surgeon. It is said that Mewburn, who detested the cold, left Winnipeg at forty below with the usual Winnipeg wind howling behind him. Bundled up in a buffalo coat, fur hat and mittens, he stepped off the train at Coal Banks in the midst of a chinook, and was greeted by men in shirtsleeves enjoying the balmy weather. He returned forthwith to Winnipeg General to finish his turn of service and set off to Lethbridge for good the next spring.

To quote Dr. Campbell again, "his main idea was to render to humanity the best service of which he was capable—and that was very good." Working from the little three-bed hospital on the banks of the Belly River, he served the medical needs of the community of miners and ranchmen and the scattered inhabitants of a vast territory round about. He was the company physician, and medical officer for the two railway construction projects, first the coal company's line from Lethbridge to Medicine Hat, and then the continuation of the CPR line through the Crowsnest Pass. In addition to all this he was appointed Acting Assistant Surgeon to the North West Mounted Police (years later he was named Honorary Surgeon to the Mounted Police, a title shared with only one other person). He must have found some time, though one cannot imagine how, for a bit of courting, for he married within a year of having moved west.

For all his years in Lethbridge Mewburn made his rounds on horseback. When the motor car appeared, he was one of the first in the west to own one; but somehow he could not bring himself to trust the thing as he could his buckskin pony, and he never learned to drive it.

Though his job was that of a general practitioner, Mewburn never lost track of his fascination for surgery, and not one of the many excellent pioneer doctors in the Alberta Territory ever gained such a professional reputation as did he. He subscribed to all the medical and surgical journals he could obtain and read them religiously for two hours every night. Each year he made a kind of pilgrimage to one or another of the great clinics in North America.

The first appendectomy west of Winnipeg was performed by Mewburn. He told his classes about it in later years, and one of his students, H. E. Rawlinson, *MD '27,* quotes him in his biographical sketch in the *Canadian Journal of Surgery*. " 'I had seen several patients die with perityphlitis, and I had also noticed articles appearing in the journals suggesting that the condition was essentially a purulent inflammation of the appendix, and early resort to surgery was advocated. I determined that the next such case that came along I would operate on without delay.' " Dr. Rawlinson continued the account in the words of another pioneer Alberta physician, W. S. Galbraithe: " 'It was my privilege, then only looking on, to watch his development from surgery of amputations and abscesses to his first appendectomy in 1893. The patient had travelled 200 miles to have it done and it had evidently ruptured some time before, and everything was in a terrible mess. . . .' " Amazingly, the patient survived and

Two portraits of the Colonel: Nicholas de Grandmaison's (which hangs in The University of Alberta Hospital), and a cartoon of obscure origin.

Mewburn's reputation as a surgeon grew.

Mewburn's operations must have been a peculiar sort of marvel for the little pioneer town. That first appendectomy was performed on a pool table with the local barber as anaesthetist. (The same operation is reported elsewhere as having taken place in a saloon in 1887.) Another case, an intestinal obstruction, was operated on in a livery stable loft with the livery man administering anaesthesia and a local ne'er-do-well acting as circulating helper. Another time, the little surgeon was approached by an old man suffering from a strangulated hernia. "I think you're going to die," the doctor warned him, "but operating is the only thing to do." This time the operating table was a butcher's block with none other than the butcher doing the honors with the anaesthetic.

The Indians in that area had implicit faith in the "great big medicine man," as they are supposed to have called him, the "great big" apparently referring to his medicine rather than his person. The government maintained a medical service of its own for them, but when there was serious trouble, they preferred to travel miles to see the little doctor.

Captain Deane in his *Mounted Police Life in Canada* tells about Mewburn's first Indian patient. He was a Blood with a severe goitre, and was accompanied by a bevy of anxious friends and relatives. "I shall have to make a big cut," the doctor told the Indians. "If you all do as I tell you after the big cut is made, this man may get well, and if he should die, you must not blame me. What do you say—shall I make the big cut?" All the Indians hastily agreed. The man got well, the confidence of the Blood tribe was won, and as the word spread, soon the Blackfoot and other tribes brought their worst cases to Lethbridge. For a while the sick Indians and their relatives were accommodated somehow in the hospital, but as their numbers grew, they were allowed to pitch their teepees on the hospital lawn.

The village population and the output from the coal mines increased apace, and the Lethbridge hospital soon seemed pitifully small. Five years after it was built the capacity was extended from three to twelve beds. In 1909, Sir Alexander Galt's son (who had inherited the coal company from his father) and the town of Lethbridge each contributed $30,000 and the Galt Hospital, with accommodation for sixty-five patients and a nursing school, was opened in 1910. At his own expense Mewburn equipped it with one of the early X-ray machines, described by Dr. Campbell as "a cumbersome affair for which power was produced by turning a crank by hand." "Marvellous to relate," he continued, "it took pictures and was capable of fluoroscopy of bones."

In 1913, not long after his X-ray machine was installed, Mewburn decided to move to Calgary and there to limit his practice to surgery. He was fifty-five at the time.

Frances Shillington Coulson, *BA '27*, the daughter of one of his associates, recounts that his bookkeeper, in an endeavor to settle things before the doctor moved, finally had to spirit him away to a shack in the Crowsnest area to separate him from his patients long enough to straighten out his books. During his years in Lethbridge, the little doctor had left the accounts to his nurse, in questionable cases scribbling such things as "Hasn't a bean—charge it to the Lord" or "Leave this fellow to me—he needs stronger language than you are capable of." When the books finally were sorted out, over $50,000 in outstanding accounts were found, with no addresses and no further records of any kind, and all written off cheerfully.

A year after his move to Calgary, the first world war broke out and the peppery little surgeon, true to family tradition, scrambled to enlist. "He sent a wire to Sam Hughes, then Minister of Defence, offering his services," his cousin, Brigadier-General S. C. Mewburn, wrote in a letter. "Sam replied, thanking him for the offer but regretting that he was too old. The doctor sent a reply saying: 'Reference your wire—go to hell! I am going anyway.' He cabled Sir William Osler and the first I knew he telephoned me from Toronto early in 1915 that he was leaving for New York." He went overseas at his own

The rustic little building (FAR LEFT) *was the company hospital where Frank Mewburn first centred his practice in Lethbridge. Indians used to pitch their tents on the lawn.*

The house with the almost oriental roof (LEFT) *was the Mewburn residence in Lethbridge toward the turn of the century.*

BELOW, *Frank Mewburn poses with four pretty nurses in his Lethbridge surgery in the 1890's. This was a vast improvement over the pool table he used and the barber who assisted him when he performed the first appendectomy in the West.*

expense, and at first was taken on as a major and set to examining recruits. Before very long he was promoted to lieutenant-colonel and placed in charge of the Surgical Division at the Red Cross Hospital at Taplow, on the Astor estate near London. By the time the war was over, he had so distinguished himself that he was awarded the Order of the British Empire, which he received from the hands of the King.

Thereafter he was called the Colonel. He returned to Calgary in 1919 ready to start his surgical practice again. But two years later, the youthful University of Alberta, having decided to offer the complete medical degree program, asked the Colonel to Edmonton to head the Department of Surgery. He never was a quick surgeon, but he was always meticulous, and his diagnostic sense was phenomenal. He proved ideal for the position, and his students thought the world of him.

In January, 1929, the Colonel died of pneumonia. He was seventy at that time and harbored absolutely no intention of retiring. Having spent a long day in an over-heated operating theatre, the Colonel had to make a house call before he went home that night. There had been some misunderstanding with his chauffeur, so that he had to walk to the patient's home through a bitterly cold night. He caught a chill, pneumonia set in, and as he was physically frail, the disease proved too much for him.

He was buried in Edmonton in a style he would have approved, his coffin wrapped in the Union Jack and mounted on a gun carriage, an RCMP guard of honor, a saddled horse with reversed boots in the stirrups, and a military band.

Four monuments of sorts are left to remind us of the Colonel, the Mewburn Pavilion (for servicemen and veterans) at The University of Alberta Hospital, the Mewburn Medal in Surgery, a plaque in the rotunda of the Medical Sciences Building, and a cairn in front of the Galt Hospital in Lethbridge. When the cairn was unveiled in the spring of 1937, amid the usual civic pomp and local dignitaries and all, a band of Indians appeared, Bloods in ceremonial regalia. From their number Chief Shot-on-Both-Sides stepped out, and silently placed at the foot of the cairn a wreath of wild flowers.

A new way to teach swimming

By Murray Smith

Last year over 654,000 Canadians were enrolled in one of the five pupil training levels of the Red Cross swimming and water safety program. In addition, 15,000 instructors and water safety leaders were qualified—an amazing performance in a country of twenty million! With the rapidly increasing participation in swimming, boating, and other water sports, the importance of this Red Cross service becomes obvious.

The need for the safety aspect of the program is emphasized by the fact that annually over 1,200 Canadians drown. Only motor vehicle accidents and falls account for more accidental deaths. It is significant to note that drowning accidents have been rising at a very much slower rate than either of the other two categories.

In an effort to increase the effectiveness of the swimming and water safety service, the Red Cross is currently revising the entire program. An interesting sidelight is the development of a joint instructor training program with the Royal Life Saving Society of Canada. The basis of the new training procedures was developed in the Faculty of Physical Education at The University of Alberta.

The revision of instructor training is a welcome step. Procedures commonly used in swimming instruction in Canada and elsewhere have changed very little over the past seventy years. During that time there has been a great deal of evidence collected to show how physical skills such as swimming are best learned. The current revision is an attempt to put this knowledge into practice.

If a casual observer were to watch at work an instructor trained under the revised program, what differences might he see? The important changes could be grouped into three categories: the nature and conditions of practice; emphasis on essential understandings; and constructive attention to emotional aspects. Let us consider each of these in turn.

Traditionally, beginners have been required to practise within a rigidly prescribed framework. As soon as possible they were practising isolated parts lifted out of a standard swimming stroke. The idea was to perfect each part, often by practising on the deck or while standing in the water, and then add up the parts to produce the completed stroke. The emphasis in practice was on "how" with little or no "why."

New practice will be to centre the activity of the learner around the three fundamental principles of buoyancy, body shape and position, and propulsion. Early attempts to swim involve the learner in maintaining the body in the long, stretched swimming position while using his limbs to produce propulsion by pushing water back. He is free to work on this challenge in his own way with assistance from the instructor. Once the swimmer can travel up to about thirty feet both face down and on his back using his own preferred method, the instructor begins the process of shaping the standard strokes out of the fundamental swimming. Practice does not centre on parts but rather on as much of the whole stroke as the learner can manage. In addition, all practice is in the water in the swimming position.

At each stage emphasis is on meaningful experience with the important underlying principles. For example, the pupil experiences buoyancy by crouching with his chin on the surface and balancing on the ball of one foot. Further experience involves observing that a rubber ball pressed under the surface jumps up when released, and that a larger ball is harder to push down. One seven-year-old boy who was afraid of sinking found that when asked to touch the floor in chest-deep water he could not. His explanation was, "The gravity of the water won't let me."

In the same way an understanding of propulsion is gradually developed through comparing the action of the hands and feet to that of a paddle (you push back the water to move forward), to the action of an inflated balloon released to dart through the air, and to other common experiences. Many children (and even adults) thus incorporate rather skillful adjustments into patterns of limb movement from very early in their instruction. The lessons about buoyancy, propulsion, and so on are not given for their own sake but merely to provide enough information so that the learner is equipped to learn for himself.

While many people never experience marked fear during swimming instruction, fear nonetheless is the source of most of the serious learning problems that are encountered. The instructors are given some insight into the nature of the emotion, its effects on learning, and practical suggestions for helping the learner to control it. In addition, instructional procedures are geared to reduce fear. It is

At a clinic for swimming instructors, Murray Smith shows new swimmers how to feel for themselves the buoyancy of their bodies in the water. Understanding such principles is the basis of his new method of teaching swimming.

recognized that to be effective these things must be applied in a humane, considerate way.

A most important question about the new approach was answered in a pilot project which I conducted on Prince Edward Island in the summer of 1967. A four-day clinic involving all of the Island's Red Cross instructors resulted in a seventeen per cent increase in the overall pass rate of the entire summer program for over 9,000 children. This increase was in spite of the fact that many of the required test items were ignored during instruction and literally were taught to the children in the lesson before the exam.

My work in developing this new approach to swimming instruction was primarily in connection with undergraduate aquatics courses in Physical Education. It has been received with enthusiasm at clinics all across Canada (including one at Inuvik, which boasts two indoor pools). Beginning this summer, all training in the Red Cross-Royal Life Saving Society combined instructor course will be based on this method.

Murray Smith, BEd '48, *is Associate Professor of Physical Education. This year he is on leave of absence to complete his doctorate, but he will return in the fall to his normal university duties, which will include the Chairmanship of the Department of Educational Services.*

That was the Hot Caf that was

Anyone who was at the University between 1942 and 1967 could tell you about Hot Caf. Hot Caf was that homely little grey building that stood on the edge of the quad, tucked in among the South Lab, the Chemistry Building, the Engineering Building, and the Cameron Library. For many years it was in a real sense the centre of the campus. It was a common ground for students and faculty; both met there and ate there, and if the gulf between them was somewhat less then than it is now, Hot Caf could claim at least a little of the credit.

Early in World War II, the Commonwealth Air Training Scheme set up shop at the University. Officer cadets, at the intermediate stage of their training and from all over the Commonwealth and from German-occupied countries, crowded into the three residence buildings and took over the only food services on campus, the cafeteria in Athabasca Hall. New facilities had to be provided for the regular University students.

I. F. Morrison, at that time Superintendent of Buildings as well as Professor of Applied Mechanics, designed the new cafeteria, except for the great supporting beams in the ceiling. The beams, called scissor trestles, were designed by George Ford, *BSc '42, MSc '46,* now Chairman of Mechanical Engineering but then a Sessional Demonstrator in Civil Engineering (in effect, a graduate student, one of the first three in that department). The fir trestles were intended more for decoration than for actual support of the high ceiling, and they lent considerable character to the building. It was completed in 1942, officially called the University Central Cafeteria, and very soon more lovingly dubbed Hot Caf.

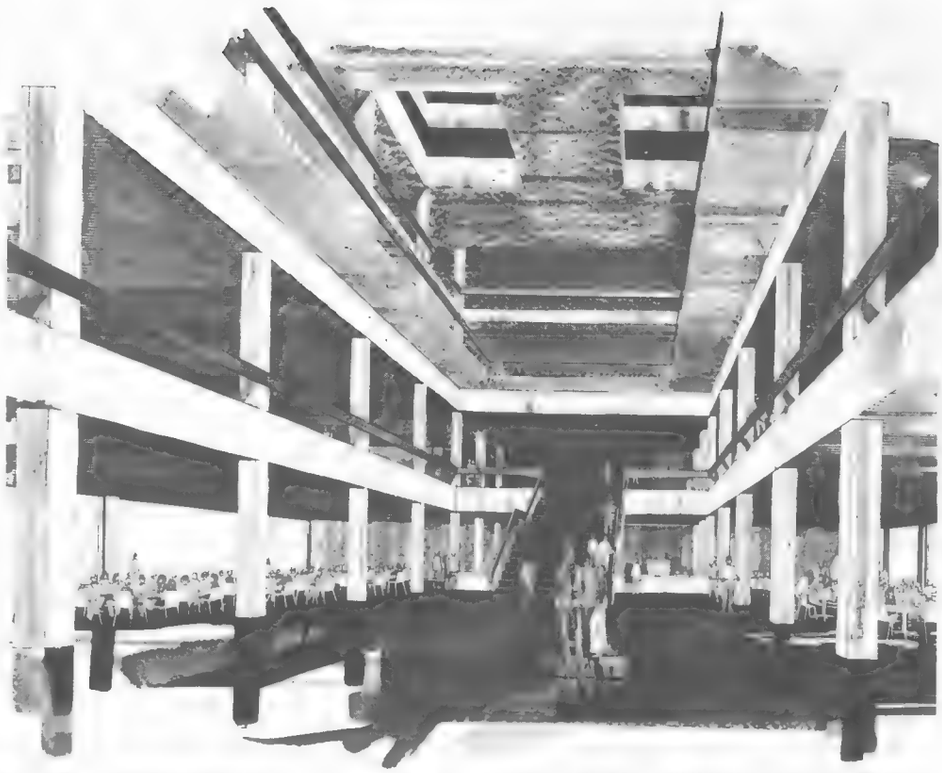
For 25 years Hot Caf did service, dishing up porridge, hamburgers, hot rolls, and full meals (including a preparation advertised as "Indiv Chicken Pie") to the entire campus. As the University grew, the little cafeteria became strained and over-crowded. In 1962 a new food services building, Lister Hall, was opened; this took off some of the strain, but Hot Caf still was packed. In 1964 the academic staff opened a Faculty Club in which to take their meals. Nonetheless, an amazing number of faithful souls continued to patronize Hot Caf. Upon the completion of the new Students' Union Building, with its large snack bar and massive food services area on the second floor, Hot Caf finally was closed. In the fall of 1967 the Boreal Institute and the Technical Services Department took over the building, where they remained for 18 months.

Old Hot Caf was torn down this summer. Where it was there are green hoardings now, behind which the new Central

The old building was uprooted during the summer, and construction hoardings put up, blocking for a time a much-used artery east of the quad. Temporary footpaths have been left for pedestrians, but these are closed as construction progresses.

Academic Building is rising fast. When Hot Caf was built it cost only $6 per square foot; the structure replacing it will cost $16.70 per square foot; both figures are regarded as good value in their time and context. The new building, besides housing overflow from various departments, is the first link in an integrated system of pedestrian passages and teaching and service areas suggested by Messrs. Diamond and Myers, the University's planning consultants. It will connect the Chemistry Building, the Cameron Library, and the Engineering Building, with an indoor channel for pedestrian traffic during the Alberta winter.

Somehow, it figures that the ground floor will be a cafeteria.



The core of the Central Academic Building (RIGHT) *will be a four storey galleried space, with a cafeteria at the bottom level.*

The interior of Hot Caf (BELOW) *changed little over the years. The scissor trestles were designed by the present Chairman of Mechanical Engineering, George Ford.*

AMONG OUR ALUMNI

Ernest C. Shortliffe

In the new specialty field of medical administration, a number of Alberta graduates are creating a decided impact at home and abroad. One of these is Ernest C. Shortliffe, *BA '41, MD '49,* recently appointed Vice-President for Medical Affairs of Anthony J. J. Rourke, Inc., Hospital Consultants, of 26 Overlook Circle, New Rochelle, New York.

A Canadian by birth, Dr. Shortliffe received his undergraduate and medical education at The University of Alberta. His graduate certification in hospital administration was granted by the University of Toronto. Following this training, Dr. Shortliffe was engaged in private medical practice in Edmonton. In 1954, he left his native country to become Associate Executive Director of Hartford Hospital, Hartford, Connecticut. He held this position for seven years, and was directly responsible for the development of the concept of selective care nursing units and for the reorganization and management of emergency and other ambulatory services.

In 1961, Dr. Shortliffe accepted the position of Executive Director of Presbyterian University Hospital at the Health Center of the University of Pittsburg. He held this post until 1964 when he transferred to Wilmington, Delaware, to guide the merger of its three non-sectarian community hospitals into the new Wilmington Medical Center. He remained until October, 1968, when he returned to Hartford Hospital on an interim basis until joining the Anthony J. J. Rourke, Inc. group.

Dr. Shortliffe has been active in various committees and councils of the American Hospital Association. He is a Fellow of the American College of Hospital Administrators and is a member of both the Society of Medical Administrators and the Council of Medical Administrators. He is a past president of the latter organization.

In his new position with Anthony J. J. Rourke, Inc., Dr. Shortliffe will play a direct role in medical care organization and management encountered in the consulting process. This will embrace medical staff organization, bylaws and regulations, medical audits, and the role to be played by physicians, dentists, and others in the development of programs of clinical care and supportive facilities within the hospital as well as the broad community.

AMONG OUR STAFF

Thomas Rolston

"Actually I am on holiday, but it never turns out that way," said Thomas Rolston, as he settled back in a wooden swivel chair in his Music Department office in the Arts Building. He talked about his teaching at The University of Alberta and at the Banff School of Fine Arts, and finally he touched on one of his favorite extra-curricular activities, the Society for Talent Education.

"I only really turned on to the idea in 1964 when I went to Japan and became influenced by Shinichi Suzuki's methods of teaching small children to play the violin. Actually, my interest was aroused before that as I searched for a way to revitalize string education. Before 1964, maybe ten years ago, interest in strings was really at a low ebb, and it was obvious that a new climate was needed, one in which the fiddle could be made a part of daily life, so that young people would want to study it."

When he came back from Japan, Professor Rolston organized the Society for Talent Education in Edmonton, and in 1965 the first lessons began. They seem somewhat unusual in that they are attended by very small children (they start at the age of three), and the children are accompanied by their mothers, who also must take lessons. The youngsters start playing by ear and are not introduced to notes until later. Often they treat the violin as a toy. It becomes a part of their lives, just as a toy or a friend does.

"The ease with which this was achieved in Japan was one of the things that really impressed me. Little children were playing the masters as if it were an amusing game."

To Professor Rolston this development is an exciting one, because he vividly remembers the time when he took violin lessons himself and used to steal through back alleys with the fiddle case hidden under his arm to avoid the scorn of his schoolmates. Now nobody teases a little boy or girl going to a lesson.

"There is evidence," says Professor Rolston, "that people are starting to get tired of their push-button lives, and that they want to reach for something meaningful, have activities in their homes apart from watching television."

That is one of the reasons why mothers should accompany their sons and daughters to lessons, to make the children feel that they are part of a climate, not an isolated phenomenon. In one family it started with a mother and her three-year-old daughter practising at home. The seven-year-old son felt left out and soon he was sent to his own lessons. The only "out" member of the group, the father, suddenly appeared one day with a violin of his own.

The organization now has 200 students from the ages of three to eight in Edmonton;

there are more now at centres in Calgary and Hamilton, and there soon will be more in Vancouver, where the program has only just started. Last October some thirty of the Edmonton children performed with grace, style, and accuracy Vivaldi's A Minor Violin Concerto. They were accompanied by the Edmonton Symphony Orchestra—a fitting reward for the founder of the program.

Professor Rolston is as active on other frontiers of string education as he is in the Talent Education program. On February 11 the official Edmonton debut of The University of Alberta String Quartet took place, an all Beethoven performance in honor of the bicentennial of the composer's birth.

"The Quartet is one of the most exciting things that has happened during my eleven years at the University," he said. The group performs concerts on campus and "anywhere in the province they are invited." All members of the quartet are professors in the Department of Music. Professor Rolston plays first violin, Lawrence Fisher, second violin, Michael Bowie, viola, and Claude Kenneson, violoncello. Professor Rolston sees the approval of The University of Alberta String Quartet by the Board of Governors last spring as another step in bringing music into the lives of everyone.

"The Music Department's students and staff have performed in places like the Edmonton Public Library, and I like the idea very much. People of all kinds listen to the music. Some of them might not stay for more than five minutes, but at least the music is accessible."

It doesn't really matter to Professor Rolston if all the students in his Talent Education groups don't go on to study music at the University, although he thinks that the Department of Music will profit from an education program such as this. The important thing is to provide people with a chance to learn and enjoy music.

The Department has shown a remarkable growth during the past years. In 1968-69 The University of Alberta joined three other Canadian universities in offering a masters degree in Music. Five graduate students were awarded Master of Music degrees last spring; this year more than four times that number of students are enrolled in the program.

The Department is offering instruction in several areas—performance, history, literature, composition, and, as of last year, opera. In fact, The University of Alberta is the only university in Canada which provides courses in opera; now it is planning to set up a full opera workshop. In the forseable future the study of pop and jazz may be added to this rather impressive list.

And of course the Department looks forward to moving into the planned Fine Arts Building in the North Garneau area. This will create unity among and permit co-operative programs between the University's fine arts departments. "As it is now the staff is dispersed over the campus," says Professor Rolston, who, as Acting Chairman of the Department for two years, fully understands the problems such scattering can create.

The out-reaching character of the Department of Music is shown in its desire to bring internationally known groups to Edmonton to give concerts and coach students. Thus, groups such as the Hungarian String Quartet and the Netherlands String Quartet visit the Department for extended periods of time offering instruction.

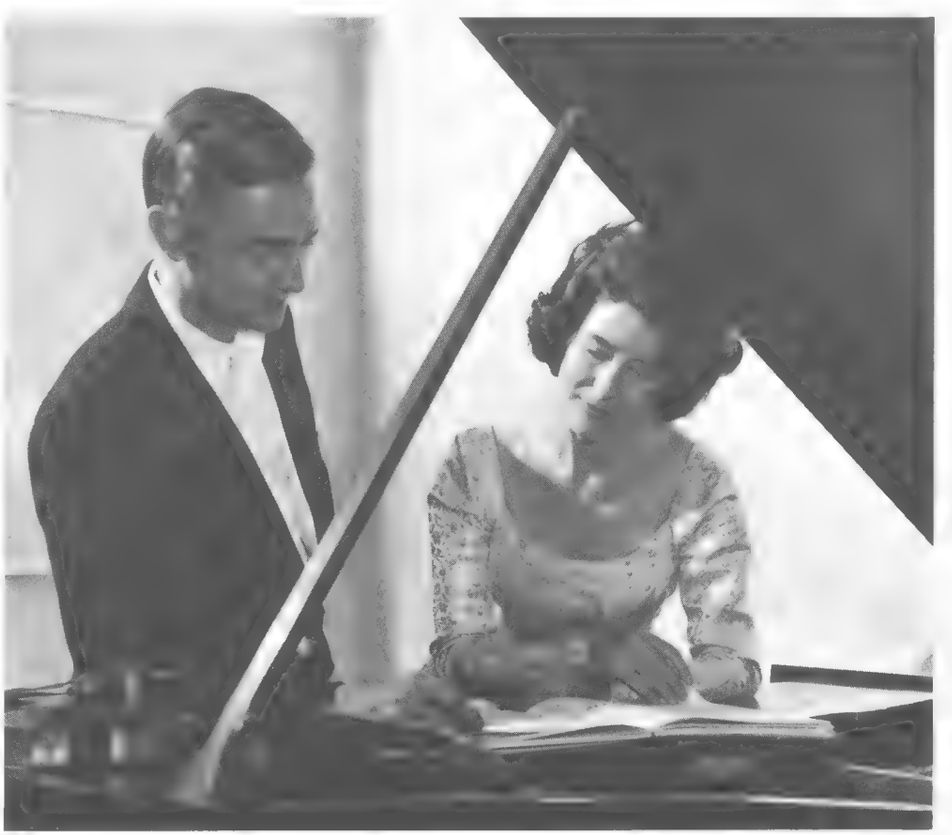
"Contacts with such groups will make the geographical isolation less noticeable to our students,"says Professor Rolston.

He is himself internationally known.

Born in Vancouver (where he walked in the back alleys with his fiddle), he has studied at the Mannes School in New York, the Royal Academy of Music in London, England, and the Conservatoire de Musique in Brussels. He has played in several famous orchestras, including the BBC Symphony Orchestra, the London Philharmonic Orchestra, the CBC Symphony Orchestra, and the Scottish National Orchestra. In addition he has performed with his wife, a noted pianist, as the Rolston-Moore Duo in Canada and around the world. He was very active in the development of the Edmonton Symphony Orchestra, of which he was Concert Master and Associate Director for five years, and the Chamber Music Society, and he still has a very active interest in both.

Professor Rolston enjoys his work in Edmonton. He has absolutely no ideas of moving, and that is fortunate for both the University and the city. Asked about his favorite composer, he said he has scores, but Mozart is very slightly in the lead.

Thomas Rolston and his wife, pianist Isobel Moore Rolston, perform as the Rolston-Moore duo. Mrs. Rolston is also an accomplished harpist.



The campus reporter

Fall Convocation '69

The University granted degrees to 1,092 students at Fall Convocation for 1969, held November 22 in the Northern Alberta Jubilee Auditorium.

The Alumni Golden Jubilee Award was given to WALTER H. JOHNS, Professor of Classics and recently retired President of the University.

The award is presented to persons who have contributed directly or indirectly to the welfare of the University. In the past it has been presented to E. C. MANNING, *LLD '48,* former premier of Alberta, Senator DONALD CAMERON, *BSc (Ag) '30, MSc '35,* and JOHN E. BRADLEY, *MD '40,* Chairman of the Board of Governors.

Three honorary Doctor of Laws degrees were awarded at Convocation. The recipients were HORATIO HENRY LOVAT DICKSON, *BA '27, MA '29,* writer and former Director of the publishing house of Macmillan and Company; MARY BOWLEN MOONEY, *BSc '30,* daughter of the late Honourable John James Bowlen, Lieutenant-Governor of Alberta from 1950 to 1959; and JOHN BRYAN WARD-PERKINS, archaeologist and Director of the British School in Rome.

The son of a Canadian mining engineer, Lovat Dickson was born in Australia in 1902 and educated in England. He came to Canada in 1917 and obtained a BA and an MA in English from The University of Alberta, where he was a Lecturer in English from 1927 to 1929. That year he became involved in publishing and returned to England. During the 1930's he was Associate Editor of the *Fortnightly Review,* Editor of *Review of Reviews,* and Managing Director of his own publishing firm, Lovat Dickson Ltd. He joined Macmillan and Company in 1938, and was Director of the Company from 1941 until 1964. In this period he was also Director of Pan Books Ltd. and the Reprint Society. An author as well as publisher, he has written *The Green Leaf* (1938), *Half-Breed, the Story of Grey Owl* (1939), *Out of the Westland* (1944), *Richard Hillary* (1950), *H. G. Wells: His Turbulent Life and Times* (1969), and his own autobiography, of which two volumes have appeared (*The Anteroom* in 1959 and *The House of Words* in 1963).

Mr. Dickson returned to Canada in 1967 and now is living in Toronto. He says that he is wholly fascinated by Canadian problems and the destiny of Canada and that he intends to write on these topics in the future.

Mrs. Mooney was born in Prince Edward Island and moved west with her parents in the 1920's. During her years of study at The University of Alberta she was a charter member of one of the first campus women's fraternities, Pi Beta Phi, and later served for ten years as a national officer for the organization. She obtained a BSc in Household Economics from the University in 1930, and from 1942 to 1950 she was Director of Household Economics for the separate school board in Calgary. When her father, one of Alberta's most famous ranchers, became Lieutenant-Governor in 1950 she moved to Edmonton, and following the death of her mother, she took up the tasks of first lady of the province.

Mrs. Mooney long has been an active supporter of all the arts in Alberta, but her special interest is in drama. A member of the Executive of the Dominion Drama Festival since 1955, she was instrumental as Festival Chairman in locating the Dominion Drama Festival in Edmonton in 1957 for the first time as a special debut for the new Jubilee Auditorium. In addition to her interests and activities in the theatre and her extensive travelling, she has maintained her father's tradition and still operates a farm in the south of the province.

Professor Ward-Perkins was born in 1912 and educated at New College and Magdalen College, Oxford. From 1936 to 1938 he was Assistant at the London Museum and in 1939 Professor of Archaeology at the Royal University of Malta. During the war he served in England, Africa, and Italy, organizing the Antiquities Department of the Military Government in Tripoli and Cyrenaica, northern provinces in Libya, and directing the Monuments and Fine Arts Subcommission

in Italy. He has been Director of the British School in Rome since 1946.

Considered one of the central scholars in Roman Archaeology in the world today, Professor Ward-Perkins has directed excavations at sites in Britain, Italy, North Africa and Turkey, and is very widely published in Roman and early Christian architecture and archaeology, Roman town planning, Roman Tripolitania, and central Italian historical topography. He has been honored numerous times for his contributions in these fields and has held a number of special lectureships at universities throughout the world; this year he is Jerome Lecturer at the University of Michigan, Ann Arbor. Professor Ward-Perkins has assisted The University of Alberta with its Summer Session programs in Rome by making available the facilities of the British School during July and August each year.

Enrolment ceiling: 25,000

The Report to Fall Convocation was presented by A. G. McCALLA, *BSc (Ag) '29, MSc '31,* Acting Vice-President (Academic). The theme of the report was planning, and a new government figure of 25,000 was announced as the enrolment quota for the University.

Ten years ago, Dr. McCalla pointed out, a planning committee was formed to make recommendations for a long range plan for The University of Alberta. Orderly planning required that the number of students to be accommodated be known. "Every forecast told us that we must prepare for very large increases in the number of students who would be seeking university education," he said. "Every forecast since we started planning has proven to be too low."

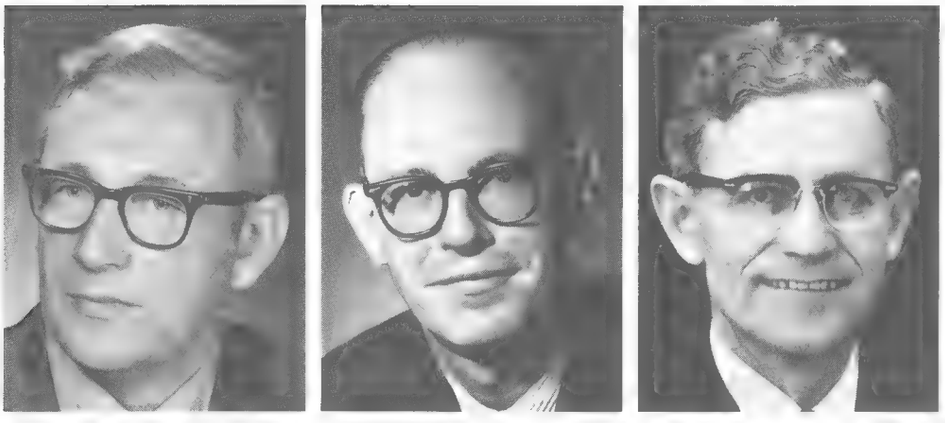
When the University began detailed planning, the enrolment was just over 30 per cent of this year's enrolment. "It was first estimated that full-time registrations might reach 16,000 in 1975. In fact, however, full-time registration this year is 17,500. This is an increase of more than 12,000 in ten years" and over 2,000 students in each of the last two years. "The planning that started ten years ago has enabled us to maintain high standards and to forecast, reasonably accurately, the requirements for further inevitable expansion."

"A critical stage in our planning was reached about five years ago," said Dr. McCalla, "when the provincial government directed the University to prepare an academic plan providing for 18,000 students. . . . The plan, finally accepted by General Faculty Council, provided for 18,900 students and it was estimated that we would reach this number by 1972. We now predict that it will be exceeded next year. It was recognized that The University of Alberta would be unable to accommodate all applicants in some of the largest faculties because the plan did not provide for all of the students who would seek admission here. It was therefore urged that immediate consideration be given to the planning of additional university facilities for the northern part of the province."

That some faculties would reach their maxima sooner than others was an accepted fact. While, according to the plan, The University of Alberta would provide for province-wide needs through such faculties as Agriculture, Pharmacy, and Household Economics, the enrolment in the large faculties of Arts, Sciences, Education and Engineering simply would have to be restricted. "Even though some upward adjustments were made in the original quotas for these four restricted faculties," he said, "the registration in Education is already more than was recommended."

"The basic philosophy underlying our planning during the past three years has been that we would not impose quotas or refuse admission until alternative university accommodation was available in this part of the province. It became increasingly apparent that the size of the University could not be held to the maximum provided for in Academic Plan 8. This was also recognized outside the University and the prospective maximum enrolment was raised to 21,000. The academic plan was not revised, however, since it was not at all certain that 21,000

Honorary degrees were presented to classicist John Bryan Ward-Perkins (far left), and two of Alberta's alumni, Mary Bowlen Mooney and Horatio Henry Lovat Dickson. At the right, Alumni Association President Les Usher presents the Alumni Golden Jubilee Award to Walter H. Johns, who retired last summer as President of the University.



Appointed to new positions are Walter D. Neal, now Vice-President (Planning and Development); Lorne C. Leitch, Associate Vice-President (Finance and Administration); and Frederick Enns, Associate Dean (Planning and Development) of the Faculty of Education.

could be maintained as the maximum enrolment and, in any case, the financial resources so far guaranteed to the University were inadequate to provide fully for the requirements of 18,900 students.

"Two weeks ago the Board of Governors received a letter from the Minister of Education through the Universities Commission, stating that, 'It is the view of the Government that the figure [for the ultimate size for The University of Alberta] should not exceed 25,000 students and that the University should now plan accommodation and facilities with this number in mind.' Many of us consider that a decision of this kind was inevitable if prospective students in northern Alberta are to be accommodated in the next four years. The University will, in all probability, reach this maximum in *not more* than four years.

"It is therefore necessary to start planning as quickly as possible for the expansion required to meet the new objectives. The Minister of Education also stated that '. . . recommendations from the Commission on Educational Planning may require another look at the issue in June of 1972. . . .' We believe that some planning for alternate university accommodation must take place before that date."

Appointments

WALTER D. NEAL, former Associate Dean (Planning and Development) of the Faculty of Education, has been appointed Vice-President (Planning and Development) by the Board of Governors. He succeeds WALTER H. WORTH, *BEd '49, MEd '52,* who now heads the Alberta Commission on Educational Planning.

Born in Bristol, England, in 1920, Dr. Neal received most of his education in Australia. He holds Bachelors' degrees in Science, Arts, and Education from the University of Western Australia, a Graduate Certificate in Educational Administration from the same institution, and a PhD from Columbia University.

A teacher from 1941 to 1949, except for four years war service, Dr. Neal has had considerable experience in the fields of educational administration, planning, and research and has held a variety of governmental positions in Australia related to these fields.

Dr. Neal joined the Department of Educational Administration in 1963. In 1967 he was named Associate Dean (Planning and Development) of the Faculty of Education.

LORNE C. LEITCH, Professor of Business Operations, has been appointed to the newly-created position of Associate Vice-President (Finance and Administration), to assist D. G. TYNDALL, Vice-President (Finance and Administration).

Mr. Leitch is a graduate of the University of Manitoba Law School and the University of Chicago School of Business. After nine years of employment with Great West Life Assurance Company, he joined The University of Alberta faculty in 1961 as Associate Professor of Finance. From September, 1968 to August, 1969 he served as Acting Dean of the Faculty of Business Administration and Commerce.

FREDERICK ENNS, *BEd '51, MEd '59, PhD '61,* has been named Associate Dean (Planning and Development) of the Faculty of Education. Dr. Enns joined the Department of Educational Administration in 1961 and is on sabbatical at present in Eugene, Oregon. He is succeeding Dr. Neal, now Vice-President (Planning and Development) of the University.

GORDON A. HOLMES has been appointed Research Grants Officer for the University. He will assume many of the responsibilities of the Dean of Graduate Studies concerning research grants and will process all grants applications. A graduate of McGill, he has served there in the same capacity.

MICHAEL BALL has been named Director of Student Health Services, replacing J. FRANK ELLIOTT, *BA '32, MD '36,* who resigned from this position last September. Dr. Ball received his training at the University of London. He has worked in a number of public health positions and formerly was Assistant Professor of Epidemiology and Health at McGill University.

Commonwealth Fellow

WILLIAM HASKING OLIVER, New Zealand historian and poet, has been named Canadian Commonwealth Research Fellow, to be resident in the Department of English from January to October this year.

Educated in New Zealand and at Oxford, Professor Oliver is one of New Zealand's most prominent humanists and intellectuals. He has published widely in history, politics, and literature, and has earned a considerable reputation as a New Zealand poet. By virtue of a varied career in publishing, broadcasting, and university administration, he is a central figure in New Zealand's intellectual life, and although formally attached to the Department of English, his stay at the University will be of interest to several other departments.

Commonwealth Research Fellowships are intended to bring scholars of established reputation from universities and research centres in other Commonwealth countries to Canada. No more than three Fellowships are offered in Canada in any one year.

Research in Agriculture

The Faculty of Agriculture has been taking a closer look at research undertaken by its staff members and has proposed the idea of a project research program to complement its extensive program of individual research. The purpose of the program is to create a core of on-going projects and to solicit support for whole research projects rather than support for individual researchers working within them. Four general program areas that are being considered by review teams are economic productivity studies, water and land use, sub-Arctic renewable resource research, and plant-animal

production and product utilization.

"The enthusiastic response of scientific personnel who have been asked to sit on the review teams would appear to support the faculty's view that there is a very real potential for the project research program," said F. V. MacHARDY, Dean of Agriculture.

A Project Research Directorate has been set up in the Faculty, consisting of the various department chairmen, and the Dean or his designate. L. W. McELROY, *BSc (Ag) '33, MSc '34,* who has been named Associate Dean (Project Research), will play an important part in this directorate.

Dr. McElroy joined the University staff in 1943 and in 1951 became Chairman of the Department of Animal Science, a position he still holds. In 1962 he was named a Fellow of the Agricultural Institute of Canada, and in 1964 a Fellow of the American Association for the Advancement of Science.

Rare Books Librarian retires

Early last fall, DOROTHY I. HAMILTON, *BA '29,* retired from the staff of the University Library after serving nearly forty years. She first joined the Library in 1928, and, except for two years absence while studying elsewhere (she also holds a BS in Library Science from the University of Washington and an MA in Library Science from the University of Michigan), she has been on staff ever since.

At first, from 1929 to 1934, she was Medical Librarian. From 1934 to 1949 she served as both Circulation Librarian and Reference Librarian and had charge of all public service functions. From 1950 to 1963 she was Chief Reference Librarian and had within her purview the Periodicals Reading Room (a separate department in 1961), the Documents Collection, the Micromaterials Collection, Rare Books, and Binding Preparation. In 1963, Miss Hamilton accepted the new position of Rare Books Librarian.

Tory Lecture

A. W. TRUEMAN, Chancellor of the University of Western Ontario, presented the 1969 Tory Lecture on October 30.

Dr. Trueman came to Canada from Pennsylvania in 1913 and pursued his university education first at Mount Allison University and then at Oxford. He taught English at Mount Allison from 1930 to 1937, and thereafter has served as President of the Universities of Manitoba and New Brunswick, and as head of the National Film Board and a director of the Canada Council. In addition to his duties as Chancellor of the University of Western Ontario, Dr. Trueman is Professor of English at Carleton University and an administrator of the Killam Memorial Trust.

In his lecture, entitled "The Generation Gap—Fact or Fancy?" Dr. Trueman stood in defence of the young generation. "If you want to help our universities—and this is no time for anyone in a fit of frustration or resentment or anger to withdraw his support—and if you want to help the younger generation, and if, of course, you want the younger generation to help you, then . . . all of us have got to fight with new determination and intellectual acumen for the elimination of war, racial hatred, over-population, pollution and the depletion of our natural resources—I shall not go through the whole list again.

"In an age which is absorbed in technology, and in the game of politics (both national and international) we have forgotten, if we ever knew, that the most important thing in our world is love, love for our fellow man. . . . We must effect a revival—if that is an admissible term—and an expansion of unalterable, even passionate belief, and practice, in charity to all men, if we wish to survive."

The Tory Lecture is sponsored annually by the Friends of the University, an organization of several hundred persons interested in the University and its aims. The lectures have been presented since 1956 to honor the University's first president, Henry Marshall Tory.

Tundra Conference draws world-wide attention

Scientists from around the world were at the University from October 14 to 17 for the Conference on Productivity and Conservation in the Tundra, which was sponsored by the Department of Zoology in association with the International Biological Program, the federal Department of Indian Affairs and Northern Development, and other concerned groups. The conference dealt with problems of developing northern regions of the world and the effects development is having upon the tundra.

Among the specific topics considered were "A Climatic Perspective of Tundra Areas," "Permafrost and its Significance for Biological Communities," "International Legal Conservation of Nature in the Northern Polar Basin," "Conservation in Canada's North," "Arctic Terrain and Oil Field Development," and "Arctic Oil: its Impact on Wilderness and Wild Life."

About 150 persons attended the conference, including specialists from the USSR, Britain, Denmark, Sweden, the United States, and Switzerland.

Anatomists need bodies

The University is in serious need of bodies for medical instruction and research.

T. S. LEESON, Chairman of the Department of Anatomy, says that an additional fifteen cadavers are required by May if the department is to maintain the standard of its training. Otherwise, there may have to be further restrictions on enrolment in the Faculty of Medicine.

The need for bodies is a continuing one. At present a minimum of 35 to 40 are required each year. In 1971, with the expansion of facilities that will result from the opening of the Basic Medical Sciences Building and the expected increase of admissions, at least 60 bodies will be needed.

Although there is a legal provision in

the Universities Act that unclaimed bodies (bodies which ordinarily would be buried at public expense) be turned over to the University, the supply falls far short of the department's needs. Moreover, with the opening of the Faculty of Medicine at The University of Calgary, the department no longer collects bodies south of Red Deer. In the past, many more bodies have come from the south of the province than from the Edmonton area.

Thus, the University is forced to rely upon donations as the major source of anatomical specimens, and it is encouraging people to bequeath their bodies for medical study after death. This practice does not contravene any religious beliefs, Dr. Leeson said.

He suggested that persons wishing to leave their bodies to the University call the Department of Anatomy for further information.

Grapevine grows up: the students' Course Guide

"There appears a period in the development of a large university that increasing size and complexity effectively militate against adequate student awareness of both the faculty and the academic endeavors of the University. At The University of Alberta that particular time has long been reached especially within the larger faculties. The result is that great numbers of students are simply unable to plan with thoroughness and accuracy their academic experience at University."

So wrote DAVID LEADBEATER in the "Introduction" to the Students' Union's first *Course Guide* in 1968. Mr. Leadbeater, who is this year's Students' Union President, was one of the *Course Guide's* pioneers.

Unlike similar publications attempted at other universities, this was a serious book, meant to be taken seriously.

The idea of a course guide was considered first about three years ago, and was given final approval in December, 1967. With assistance from members of the Departments of Psychology and Computing Science, forms were drawn up asking pertinent questions about a course and its instructor. The questionnaires were passed around in several classes or were obtained by the students at the Students' Union. Answers were presented in the *Course Guide* in tabular form, ranging from "poor" to "excellent." Statistics also were shown, such as official enrolment figures, the number of responses, composition of the class by level and faculty of students and so on, so that the responses and comments could be taken for what they were worth.

The comments in the *Course Guide* were summations of the students' own remarks about the course and the instructor, and the editors avoided including their own sarcastic or witty comments.

The prime purpose of the *Course Guide,* was that it be a source of "easily accessible, reasonably accurate and comprehensive information" for students. And the professors learned something too. The *Guide* provided a more complete "feedback" than had been available before, and in reflecting the strengths and weaknesses of particular courses, it assisted greatly in the planning of new courses and the revision of old.

The second edition of the *Course Guide* appeared in time for the 1969 registration, a considerably larger book than its predecessor. Basically it had the same format as the first edition; the most noticeable change was in the response scale, now rated from "strongly disagree" to "strongly agree", an endeavor to avoid the absolute judgements implicit in the "poor" to "excellent" scale. This year, instructors added their comments to those of their students, indicating whether they would continue to teach a particular course and whether any changes in the course were envisaged. The scope of the *Guide* broadened enormously. Many more courses, even those in professional faculties like Engineering and Agriculture, were represented. The number of responses were up too, the result of several instructors distributing the questionnaires and allowing them to be filled out in class time.

By exercising both good sense and restraint, the editors of the *Course Guide* have produced a document which has received wide acceptance. The old "grapevine" has been replaced by a serious effort to let all of the students in on the experience of a few with a course, and the students are learning to use this knowledge to plan their university careers.

A very Canadian happening

Navel contemplation in search of a national identity long has been a favorite preoccupation of Canadian minds. Perhaps the problems of identity, of determining what is the Canadian spirit and if it is at all, would not be so great were we not next door to the world's most powerful English-speaking nation. Simply being adjacent to the United States is enough to flood us with things American—magazines and television shows, subsidiary companies and military alliances. The sorry result is that we have become a sphere of influence of the United States, a galling thing to those who yearn for a Canada that is in fact Canadian.

But a new nationalism has been rising noticably in Canada, especially since Centennial year, and this nationalism was focused very clearly in a Students' Union teach-in held in November, entitled "The American Domination of Canada." There were five sessions in two days and some very notable guests.

KENNETH McNAUGHT of the Department of History at the University of Toronto spoke the first day. "The history of Canada is a history of survival," he said. "For 145 out of 190 years, Canada has lived in fear of military conquest by the United States." In 1775 and again in 1812 there were actual attempts to annex Canada by force, and border disputes and American notions of "manifest destiny" with respect to the northern half of the continent continued well into the nineteen-twenties. Professor McNaught felt that Canada possessed a

Poet and Critic '69, a national conference on Canadian poetry, was held at the University in November under the sponsorship of the Departments of English and Romance Languages. Among the many notable participants were poet EARLE BIRNEY *(left), who is Professor Emeritus of creative writing at the University of British Columbia, and critic* CLEMENT MOISAN, *who teaches at Laval University.*

national nervousness, an anticipation of economic, political, and military retaliation for actions taken. Political union always has been rejected by both French and English Canadians, he said, although there have been "strong temporary temptations" for Canada to become "the Scotland of North America."

That evening, in the panel discussion on foreign policy, the Honourable PAUL MARTIN, Government Leader of the Senate and former Minister of External Affairs, was placed on the hot seat. Senator Martin's opinion was that Canada had an independent foreign policy, that we are in no way threatened by the United States, and that the closeness of Canadian and American foreign policies is simply the result of concurrent interests. Of the other members of the panel, only Professor McNaught agreed that Canadian foreign policy was independent and that it reflected the wishes of the Canadian public. It bothered him deeply that this should be so, for it indicated that Canadians believed the "cold war myth" and the efficacy of the balance of power.

LEWIS HERTZMAN, Chairman of the Department of History at York University and formerly a Professor of History at The University of Alberta, felt strongly that the United States posed a definite threat to Canada "in many ways." He suggested that before Canada sets out on an independent foreign policy we should examine what Canada is and what our present foreign policy is to see if it is relevant to Canada's real needs. JOHN WARNOCK, a member of the Department of Political Science at the University of Saskatchewan, felt that an independent foreign policy is unattainable until Canada is "free of the colonial influence of the United States." Professor Warnock, co-author with Professor Hertzman of a study of Canadian foreign policy entitled *Alliances and Illusions* (published by M. G. Hurtig, Ltd., of Edmonton), particularly objected to American military influence in Canada and to the NATO and NORAD agreements. PAULINE JEWETT, Director of the Institute of Canadian Studies at Carleton University and Liberal party Vice-President, also took exception with Senator Martin, noting that Canadian politicians assume that Canadians are politically the same as Americans and base their foreign policy on this assumption.

MEL WATKINS of the Department of Political Economy at the University of Toronto and Vice-President of the New Democratic Party spoke the second day on Canada as a "branch plant" of the United States. "We not only have branch plant businesses, but branch plant universities, intellectuals, politicians, and news media."

In a panel discussion that followed on "Americanization and the University," ROBIN MATTHEWS, a professor of English at Carleton University and formerly at The University of Alberta, considered the "branch plant" nature of our universities and intellectuals. Professor Matthews deplored the extent of American influence in our universities, stating that "there is a poverty of Canadian materials, Canadian methods, and access to the Canadian fact, so that we are producing students whose ignorance of the country breeds an inevitable contempt for its life." He charged that fewer Canadians are being appointed to academic positions in Canadian universities and that indeed discrimination has been shown against Canadians in this respect.

The Chairman of the Chemistry Department at The University of Alberta, HARRY GUNNING, took a position opposite to Robin Matthews. Contrary to Professor Matthews' view that all persons employed in a Canadian university should be Canadian citizens, Dr. Gunning stressed that the quality and the ability of the persons hired mattered much more than citizenship or birth.

Professor McNaught had said the previous day in his keynote address that so long as there is economic domination of Canada, there will be political and military domination; Pauline Jewett said later that day that Canada avoided independent action because of fear of economic reprisals. Economic policy itself was discussed the second evening. Professor Watkins, a member of the panel, reiterated his "branch plant" analogy, pointing out that American branch plant managers, though they are residents of Canada, must obey American laws such as the Trading With the Enemy Act. "Political independence is an illusion," he said, "until it is related to economic independence."

WALTER GORDON, former Minister of Finance and for years considered a radical in the Liberal party, long has had strong feelings about American economic influence in Canada. Recalling days when Canada was struggling to free herself from British colonialism, he added, "we have become free of the British only to become a satellite of the United States." The Chairman of the Economics Department at The University of Alberta, TOM POWRIE, and HU HARRIES, *BSc (Ag) '45,* former Dean of Business Administration and Commerce and now Member of Parliament for Edmonton Strathcona, also participated in the discussion. Dr. Harries felt that the onus is on Canadians themselves to regain control of the economic situation.

"The real impact of the teach-in," as a *Gateway* writer phrased it, "lay in the fact that it dared to be political." Perhaps it was the political unselfconsciousness of most of the speakers and panelists that kindled the enthusiasm, concern, and avid sense of participation in the students, the professors, and the public who attended the various sessions. Undoubtedly the teach-in was one of the most successful events sponsored by the Students' Union in recent years, and its effects are being felt still.

It was a very Canadian happening. Everyone deplored the government's subservient policies vis-à-vis the United States, deplored our own inaction in allowing the domination, knocked Uncle Sam, and felt intensely Canadian for weeks afterward.

A very Canadian happening indeed. . . .

Mr. Bryden
Dr. Wallace
Mrs. Cheriton
Mr. Duff

Alumni notes

By Alex G. Markle
Alumni Affairs Editor

'16

To SAM LAYCOCK, *MA '16, MEd '23,* there's nothing really special about special education. And his point of view is very clear, once you believe the old maxim that everybody is different. "Special education is not a hole-in-the-corner affair. It's part of general education," says Dr. Laycock. Recently "Dr. Sam," as he's known to friends, became British Columbia's most prominent figure in the field of educating emotionally disturbed children. He wrote a 265-page report on the problem, based on a 1968-69 study of the province's schools and financed by a $6,000 grant from the Educational Research Institute of British Columbia.

'24

The woman who has guided the growth of Montana State University Library from 75,000 volumes to nearly half a million has announced plans to retire. LESLEY M. HEATHCOTE, *BA '24, MA '28,* head librarian since 1947, will be leaving the post at the end of the year. Miss Heathcote was named Montana's Librarian of the Year for 1969 in recognition of "tireless and perceptive leadership in the state in her profession."

Congratulations to His Honour Judge LOUIS SHERMAN TURCOTTE, *LLB '24,* a Judge of the District Court of Southern Alberta, who was recently named Chief Judge of that court.

'26

The "most satisfying" aspect for DONALD C. BRYDEN, *BA '26, BSc (Eng) '28,* of his 39-year career—according to D.C.B.—has been being taken for granted . . . if you accept that the measure of a man in the public employ is the ability to do his job with a minimum of fuss. And the measure of Donald C. Bryden, who retired as General Manager of Winnipeg Hydro last summer, is that he has run an $86,000,000 public utility so effectively that its customers take it very much for granted.

The new Chairman of the Board of Westcoast Transmission resents having to talk about himself. But when it comes to oil and gas, his company's bread and butter, DOUGLAS PETER McDONALD, *BA '26, LLB '28,* (better known as "D.P.") speaks with authority and without hesitation.

'28

The office reflects the characteristics of its occupant, small and contained, but comfortable, efficient, and exact. BILL HARPER, *BSc (Ag) '28,* the man behind the desk, has been advising Farmers' Union of Alberta members for four years from this office and has been dedicated to farming since 1928. It ended (for the record at least) with his retirement last June. Mr. Harper has had a varied and extensive agricultural upbringing.

For a Cominco mining engineer-pilot who was among the first to explore the Canadian Arctic for minerals by aircraft, retirement will mean the Kootenays, fishing and hunting. He is R. E. (BOB) WALTON, *BSc (Eng) '28,* Manager, Purchasing, who joined Cominco in 1927 as a mine surveyor at Kimberley.

'31

It is a source of particular pride that of the seven new Fellows elected to the Agricultural Institute of Canada for 1969, four were distinguished graduates of the University. They are: A. W. HENRY, *Ag '31,* Professor Emeritus of Plant Pathology at the University; J. B. P. CAMPBELL, *BS (Ag) '38,* Officer-in-Charge, Pasture and Animal Science Section, Canada Agriculture Research Station, Swift Current; W. D. PORTER, *BComm '36, MA '38,* Director, Census Division, Dominion Bureau of Statistics, Ottawa; E. W. STRINGAM, *BSc (Ag) '40, MS '42,* Head, Department of Animal Science, University of Manitoba, Winnipeg.

A well-respected member of the Banff Community, DON BECKER, *BA '31, MSc '33,* has been named Acting Director of the Banff School of Fine Arts, filling the shoes vacated by retired Senator DONALD CAMERON, *BSc (Ag) '30, MSc '35.*

The acting director of the Lethbridge Research Station, M. W. CORMACK, *BSc (Ag) '31, MSc '31,* will retire after 40 years with the Canada Department of Agriculture.

"If you were a woman doctor you had to work twice as hard to prove you were in earnest," says C. E. MAHAFFY, *MD '31,* of Sylvan Lake, formerly a resident of places such as Victoria, B.C.; Punjab, India; and Los Angeles, California. But that didn't deter Elizabeth Mahaffy, a woman with gumption and ability, who realized her life's career despite obstacles. Now Dr. Mahaffy, her blue-grey eyes sparkling, looks back over the years and says she has "had fun out of life."

'32

The lanky figure of Canada's VLADIMIR IGNATIEFF, *MSc '32,* has been a familiar sight around the halls of the Food and Agriculture Organization since that United Nations agency began 24 years ago. Over the years, visitors or FAO colleagues came to know the Russian-born biochemist and soils expert well. Dr. Ignatieff was, after all, the first Canadian to become a UN civil servant. Now, after a quarter-century of international service—and as Deputy Director of the Land and Water Division, FAO's ranking Canadian is going home to his farm near Richmond, Quebec.

The University's graduates and friends are encouraged to keep in touch with the Alumni Association. If you are able to help organize alumni activities—in Edmonton or another centre—please let us know. Tell us about your personal doings too.

Write (or telephone) the Alumni Association (432-3224) at the University.

When Alberta's graduates are mentioned in THE NEW TRAIL, their degrees and graduating classes are listed after their names. Many also have degrees from other universities, but these are not generally shown.

Alumni Association Executive

Honorary Secretary, ALEX D. CAIRNS, *BA '38*
(Registrar, The University of Alberta)
President, C. LES USHER, *BSc (Ag) '49*
Vice-President, NORMAN A. LAWRENCE, *BSc (Eng) '41*
Past-President, D. C. RITCHIE, *MD '41*
Executive Secretary, ALEX G. MARKLE, *BA '48, BEd '62, MEd '65*

CYRIL J. McANDREWS, *BSc (Ag) '50*
W. A. D. BURNS, *BA '51*
W. J. ASTLE, *BComm '46*
W. MELVIN TASKEY, *BSc '54, DDS '56*
B. T. KEELER, *PhD '61*
RALPH N. McMANUS, *BSc (Eng) '42, MSc '46*
DONALD R. STANLEY, *BSc (Eng) '40*
MISS EVANGELINE MacDONALD, *BSc (HEc) '57, BEd '59*
C. A. KOSOWAN, *BA '50, LLB '51*
B. MICHALYSHYN, *MD '42*
MRS. JOAN SHIMIZU, *Dip Nurs '57*
LEE S. FAIRBANKS, *BEd '54, MA '66*
MRS. IRENE ESKILDSEN, *Nu '65*
CAMBY GILLESPIE, *BSc (Ag) '36*
HARRY P. CHOMIK, *BEd '50, BA '56, MEd '64*
BOB EDGAR, *BSc (Pharm) '55*
MRS. ANN CORNETT, *BSc (HEc) '36*

After forty-four years as a teacher and administrator, M. D. MEADE, *BA '37, BEd '43,* retired this year as Principal of the Parkland Composite High School at Edson.

'33

The newly installed President of the American Society of Heating, Refrigerating and Air-Conditioning Engineers Inc. is WILLIAM G. HOLE, *BSc (Civ Eng) '33,* Chairman of American Air Filter of Canada Ltd., of Montreal.

'36

A book entitled *The Politics of Canadian Broadcasting—1920-1951,* a study of the development of Canadian broadcasting from the beginnings of radio to the advent of television, has been published recently by FRANK W. PEERS, *BA '36, BEd '43.*

An engineer with an international reputation, D. R. TEGART, *BSc (Mining Eng) '36,* has been appointed project manager in the construction of a 40-megawatt nuclear research reactor purchased recently by the Chinese Atomic Energy Council of Taiwan from Atomic Energy of Canada Limited.

'39

Gulf Oil Canada Limited has appointed C. W. COOTE, *BSc (Chem Eng) '39,* resident representative for marine facilities at Point Tupper, Nova Scotia, where the company is constructing a $60 million refinery to be served by an oil-handling wharf capable of accommodating the world's largest oil tankers.

'40

J. D. WALLACE, *MD '40,* Executive Director of Toronto General Hospital was the recipient last fall of The University of Alberta's Medical Alumni Outstanding Achievement Award for 1969, in recognition of his outstanding contributions in the field of medical administration.

The former Chairman of Biochemicaloncology at Stanford Research Institute, G. A. LePAGE, *BSc '40, MSc '41,* has been named the Harry Carothers Wiess Professor of Cancer Research at the University of Texas M. D. Anderson Hospital and Tumor Institute.

'41

MRS. QUEENA KLEIN (née Wershof), *BA '41,* has been elected a member of the Viking town council.

'42

For the first time in history a member of the medical profession has been admitted as a member of the Alberta bar. In a brief ceremony at the Supreme Court, the Chief Justice of Alberta, S. BRUCE SMITH, *BA '19, LLB '22,* expressed his pleasure at presiding at the admission of a tall, attractive woman: FLORENCE BRENT, *BA '42, MD '42, LLB '68.*

JOHN AITKEN, *BSc 42,* has been named Chief of the Space Research Facilities branch of the National Research Council of Canada.

'43

An Edmonton urologist has been accorded honorable mention for a film on surgical techniques. JAMES METCALFE, *BSc '43, MD '46,* entered the film in the scientific sessions of the western section of the American Urologist Association in Seattle. His was one of two film productions singled out for special commendation.

'44

A specialist in genetics and plant breeding, J. E. ANDREWS, *BSc (Ag) '44, MSc '47,* Director of the Swift Current Research Station has been appointed Director of the Lethbridge Research Station, succeeding T. H. ANSTEY.

The well-known theologian, J. ARTHUR BOORMAN, *BA '44, BD '46,* is Secretary and Assistant to the Dean of the Faculty of Divinity at McGill University.

'46

There is scarcely a business field that today's woman hasn't invaded. One of these is engineering and the lady is MRS. MURIEL CHERITON (née Smith), *BSc (Elec Eng) '46,* the only female engineering graduate in the class of '46. She is now associated with her husband and fellow engineer, ROSS CHERITON. They have their own firm in Edmonton.

MRS. NAOMI KASSIE (née Wershof), *BSc '46,* has received a Licenciate of Music diploma from McGill.

JOHN J. LIPINSKI, *BSc '46, MD '48,* has been appointed Assistant Executive Director-Medical at the Edmonton General Hospital, replacing RUPERT M. CLARE, *MD '38,* who will continue on staff as the Hospital's Chief of Radiology, a position he held jointly with the post of Medical Director.

'47

E. R. BERG, *BSc (Ag) '47,* is the new B.C. manager of Cominco chemical and fertilizer sales.

A civil engineer who has gone to the top, MURRAY E. STEWART, *BSc (Civ Eng) '47* President of General Waterworks Corp., a subsidiary of International Utilities Corp., has been named group Vice-President—Utilities for all of the IU utilities operations in the United States and Canada.

In the area of management consultation, ALLON W. FRASER, *BA '47, MA '49,* has recently been appointed a principal of Stevenson & Kellogg, Ltd.

'48

DALE THOMSON, *BA '48,* of the University of Montreal, has been named first Director of the Center for Canadian Studies which opened in Washington in September as part of the Johns Hopkins University Graduate School of Advanced International Studies.

A former resident of the Peace River district, ALVIN E. WALKER, *BSc '48, MD '51,* has been appointed Medical Director of Pacific State Hospital, Pomona, California.

'49

DONALD J. DUFF, *BEd '49,* has been appointed Vice-President for Planning and Development at the Nova Scotia College of Art and Design in Halifax.

HUGH HAY-ROE, *BSc '49,* has been named by Belco Petroleum Corporation of

Branches

CALGARY—Chairman, CAMBY GILESPIE, *BSc (Ag) '36,* 2641 - 5 Avenue N.W., Calgary; Secretary, KEN OLIVER, *BSc (Pharm) '54,* 3408 Cascade Road, Calgary.

CAMROSE—Secretary, MISS MARGIE McCREA, *BSc '43,* 47 - 1047 Street, Camrose.

DENTAL ALUMNI ASSOCIATION—President, W. M. TASKEY, *BSc '44, DDS '56,* 505 Tegler Building, Edmonton.

GRANDE PRAIRIE—President, PAUL LEMAY, *BSc '63, MSc '65,* 10129 - 113 Avenue, Grande Prairie.

MEDICAL ALUMNI ASSOCIATION—President, B. MICHALYSHYN, *MD '42,* 403 Medical Arts Building, Edmonton.

MEDICINE HAT—President, JACK ARMSTRONG, *BComm '49,* 158 Cochrane Drive N.W., Medicine Hat; Secretary, B. KRASNOFF, *DDS '43,* 250 - 4 Avenue S.W., Medicine Hat.

MONTREAL—President, J. R. FLUMERFELT, *BComm '42,* District Manager. London Life Insurance Co., 630 Dorchester Boulevard, Montreal; Vice-President, L. W. KENNEDY, *BSc (Eng) '38,* Manager, Refinery Division, Texaco Limited, 339 Morrison Avenue, Montreal.

NURSES' ALUMNAE ASSOCIATION—President, MRS. PATRICIA HAUGEN, *Dip Nurs '57,* 11740 - 37 Avenue, Edmonton.

OTTAWA—President, DR. VELMA I. RUST, *BSc '34, BEd '44, MEd '47,* 811 Adams Avenue, Ottawa; Secretary, BRIAN WATSON, *BA '64,* 130 Woodridge Crescent, Ottawa.

RED DEER—President, MRS. ANN CORNETT, *BSc (HE) '36,* 4416 - 43 Avenue, Red Deer; Secretary, MORRIS FLEWELLING, *BEd '64,* 2—4536 - 47 Street, Red Deer.

REGINA—Chairman, MRS. RUTH M. HARGRAVE, *BA '33,* 3927 - 17 Avenue, Regina.

ROCHESTER, MINNESOTA—Registrar, GEORGE D. MOLNAR, *BSc '49, MD '51,* Mayo Clinic, Rochester, Minnesota.

SASKATOON—Chairman, DONALD C. BRINTON, *BSc (Ag) '51,* Station Manager, CFQC-TV, 216 - 1 Avenue N., Saskatoon.

TORONTO—President, ROBERT B. N. LINDSAY, *BComm' 54,* 22 Glentworth Road, Willowdale 427, Toronto.

New York to the newly-created post of Assistant Manager of its Peruvian subsidiary, with headquarters in Lima.

'52

A double directorship was recently placed with R. H. CHOATE, *BSc (Elec Eng) '52,* named Vice-President and General Manager of The Yukon Electrical Co. Ltd. and Yukon Hydro Co. Ltd. He is a Director of both companies.

'53

SHIRLEY M. STINSON, *BSc (Nursing) '53,* has become Alberta's first nurse to earn a doctoral degree. Only about 12 nurses in Canada hold this title and two Alberta nurses have been accorded a doctorate as an honorary award.

Studies on wildlife ecology which will help modern man to fit into a natural ecological system without disturbing other species are being pursued in a northern Alberta forest. Head of the team of scientists is LLOYD KEITH, *BSc (Ag) '53, MSc '55,* who is now Head of the Wildlife Ecology Department at the University of Minnesota.

'54

HARRY BRODY, *BSc '54, MD '56,* has been appointed Professor and Head of the University of Calgary's new Faculty of Medicine.

'55

Also at U of C is H. A. R. de PAIVA, *BSc (Eng) '55,* now Head of the Civil Engineering Department on the Calgary campus.

'56

A nine-year-old British Columbia boy who suffered a tear in the retina of his right eye has left Boston for home with sight in both eyes. M. MacKENZIE FREEMAN, *MD '56,* described by the Massachusetts Eye and Ear Infirmary as the world's foremost specialist in retinal tears, repaired the damage to the eyes of the young lad from B.C.

The Chemical Institute of Canada's first tour speaker for 1969-70 was T. W. F. RUSSELL, *BSc '56, MSc '58,* currently Associate Professor of Chemical Engineering at the University of Delaware.

'57

A lady who worked her way up the ladder to success, started her career as a secretary to a former President of The University of Alberta. MISS FLORENCE M. CAMPBELL, *BA '57,* is now manager of Educational Services, Office Products Division of International Business Machines in Toronto.

G. F. O. LANGSTROTH, *BSc '57,* Assistant Dean of Graduate Studies at Dalhousie University for the last two years, has been named Dean of the Faculty. Before joining Dalhousie, he held appointments with the Defence Research Board and Atomic Energy of Canada Ltd. In his work at Dalhousie, Dr. Langstroth is assisted by BRIAN CLARK, *BComm '62,* former Assistant-Manager of the Students' Union here.

'58

RALPH H. SABEY, *BEd '58, MEd '66,* former teacher and principal in the Taber School Division has received a PhD from the University of Oregon.

'59

Water safety is everyone's business and a young Queen's University professor, RALPH LUND, *BPE '59,* says drownings are not limited to the young. Sixty per cent of victims are adults and many of them are strong swimmers.

A PhD in economics has been acquired by LOUIS PARAI, *BA '59.* Louis is presently on staff at the University of Western Ontario where he is Director of Graduate Studies and Assistant Head of the Department of Economics.

The Canadian Imperial Bank of Commerce was the first of its kind to set up an agricultural department specializing in the needs of the farming community. A recent announcement by the bank named CLARENCE ROTH, *BSc (Ag) '59,* as the Agricultural Officer for the Alberta region.

'60

The award of five scholarships for post-graduate study in highway sciences has been announced by the Canadian Good Roads Association. One of the five "Roads" scholars is GARRY W. HOLLINGSHEAD, *BSc '60, MSc '65,* currently at Queen's.

'61

When the powers-that-be in the Western Ontario Drama League chose LARRY EWASHEN, *BA '61,* to be their artistic director-adviser for the 1969-70 season, they probably didn't realize they were picking a guitarist who, a few years ago, warbled western ditties from the stage of Hamilton's now disappeared Golden Rail Tavern with a band known as The Blue Velvet.

JOHN W. FILDES, *BSc (Civ Eng) '61,* has moved to Lethbridge from Calgary to assume his recent appointment as Manager for Lethbridge and district for the Canadian Western Natural Gas Company Limited.

A star Golden Bear basketballer when he was on campus, JOHN (JACK) HICKEN, *BA '61,* has obtained his master's degree in history from Utah State University.

'62

Theatre people are often faced with moments of decision. Actress KAREN AUSTIN, *BA '62,* made a big one this spring when she decided there was no satisfaction for her in academic theatre. She gave up teaching and working toward a master's degree so that she could act full time.

EDWARD N. McLEAN, *BSc '62,* has been named Chief Engineer for Dawson Developments, Ltd.

The controversial book *The Feminine Mystique* written by Betty Friedan in 1962 delighted some women, angered others, and brought both high praise and scorn to its author. To a young woman visiting in Edmonton this past summer it was a "Declaration of Independence." She is MISS ROMA STANDIFER, *BA '62,* anthropologist, who is endeavoring to obtain a grant from the National Museum of Canada to do field work with one of the

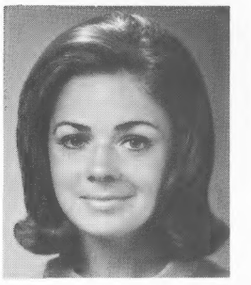
VANCOUVER—President, MRS. SHEILA G. MAXWELL, *BA '48,* 4550 West 7th Avenue, Vancouver; Secretary, MRS. SHEILA ROBINSON, *BSc '45,* 1810 Rosebery, West Vancouver.

VEGREVILLE—President, HARRY P. CHOMIK, *B.Ed. '50, MEd '64,* 4334 - 51 Street, Vegreville.

VICTORIA—President, ALLAN F. McQUARRIE, *BSc '41,* 983 Abbey Road, Victoria; Secretary, MRS. KAY G. STEWART, *BSc (Hon Chem) '50,* 1746 Lulie Street, Victoria.

WESTLOCK—Registrar, BOB J. EDGAR, *BSc (Pharm) '55,* Box 990, Westlock.

WINNIPEG—President, A. M. LARSON, *BSc (Ag) '49,* 526 Manchester Blvd., Fort Garry 19; Secretary, MARVIN SEALE, *BSc (Ag) '48, MSc '51,* 195 Lyndale Drive, Winnipeg 8.



Miss Arkinstall

Blackfoot tribes of Southern Alberta next summer.

'63

MISS PATRICIA ARKINSTALL, *BSc (HEc) '63,* has been named Manager of Consumer and Retail Education, Celanese Fibers Marketing Company.

LORNE BRAITHWAITE, *BComm '63,* has graduated with a master's degree in business administration. At present Lorne is employed by Atco Industries in Calgary in their new operations department.

SISTER ANN FRANCES HEAD, *BEd '63,* has announced her retirement, after having spent 43 years in the teaching profession, 35 of them in Medicine Hat.

DAVID H. REHILL, *BSc '63, MA '66,* has been appointed Supervisor of Research for the Alberta Department of Youth.

A hometown boy who made good is CLAUDE H. LANGLOIS, *BA '63,* born and educated at St. Paul. Claude took an honors degree in economics and mathematics, and went to Ottawa as a research assistant with the Royal Commission on Taxation. Later he went to the Bank of Canada, returned to University for a year, went to Calgary with an oil company, and is now back to Ottawa, this time as Research Economist with the National Energy Board. A recent announcement has Mr. Langlois appointed Executive Director, Canadian Federation of Mayors and Municipalities, a promotion from his previous posting as Information Officer and Assistant to the Director of the Federation.

'64

The appointment of GRAHAM FARQUHARSON, *BSc '64,* to the mining division of Watts, Griffs and McQuat Limited in Toronto has been announced.

Twice a winner for the best Director Award at the provincial high school and adult drama festivals, KENNETH J. GRAHAM, *BEd '64,* has been named Assistant Drama Supervisor with the Drama Division of the Cultural Development Branch of the provincial government.

'65

Captain ROD C. A. GORDON, *BA '65,* has been appointed Executive Assistant and Information Officer of Canadian Forces Base, Borden, Ontario.

DANIEL P. KELLEY, *BA '65,* a graduate of Royal Military College, and a former Lieutenant in the Canadian Army, is working as a liaison officer, promoting the employment of northern residents, particularly Indians and Eskimos, in the Yukon and Northwest Territories.

GERALD F. MANNING, *BA '65, MA '66,* is a member of the staff of the Department of English at the University of Guelph.

Taxsavers/Timesavers, a national computer service organization, has WAYNE M. PENDLETON, *BComm '65,* as its Director of Marketing and Consulting.

ELCO KROON, *BA '65, LLB '68,* and his wife and classmate KAREN (née Bang) have been admitted to the British Columbia bar. They will practice law in North Vancouver.

To have any kind of a spider for a pet is unusual. To have a deadly-poisonous banana variety is bizarre. Unless of course you happen to like spiders or have decided to devote your life to a study of the eight-legged creatures. ROBIN LEECH, *MA '65,* a graduate student with the Department of Entomology does have a poisonous banana spider in his office. He's studied spiders from Africa to the North Pole.

'66

MISS LORETTA BAERG, *DipNu '66, DipPubHealth '69,* is the new Head of the Victorian Order of Nurses in Owen Sound.

H. H. BRYCE, *BSc (Ag) '66,* has been appointed statistician with the provincial government's Department of Agriculture, Economic Division.

The man who had a lot to do with the planning of the new Students' Union Building on campus, ED MONSMA, *BSc '66,* is the new assistant to Alberta health minister JAMES HENDERSON, *BSc (Pet Eng) '66.*

MISS BARBARA THEEDOM, *BSc (HEc) '66,* has accepted a position as public health nutritionist in Cape Breton.

The Moravian province of Guyana will be served by HARVEY K. PROCHNAU, *BA '66,* who recently received a BD from the Moravian Theological Seminary.

R. F. LELAND, *BComm '66,* is Comptroller of Calcorp Resources Limited and Centron Equity Corporation.

A floating medic safari has been joined by MISS JOAN SUDDABY, *BSc (PH) '66,* now serving aboard the hospital ship *S. S. Hope* at sea on a 10-month teaching and treatment mission to Tunisia.

'67

The appointment has been announced of KEN JOHNSON, *BSc '67,* as Executive Producer for a new CBC Winnipeg public affairs series to be seen this fall.

An energetic member of the University Athletic Board while he was an undergrad, LANCE B. RICHARD, *BA '63, MD '67,* has joined the medical staff of the C. S. Williams Clinic in Rossland, B.C. Another medical graduate, J. D. SANDHAM, *MD '67,* has joined the Parsons Clinic in Red Deer. Classmate PAUL F. SCHNEE, *MD '67,* has been appointed Medical Officer for the Wetoka Health Unit with his head office in Wetaskiwin.

A PhD in zoology is being sought at the University of Saskatchewan by WAYNE DWERNYCHUK, *BSc '67, MSc '68.*

The Northern Life Assurance Company of Canada has announced the appointment of GILBERT R. CARLSON, *BComm '67,* as manager of their Edmonton agency.

'68

The source of Islam and Christianity is one and the same, and if there is any difference between the two, man put it there himself, says ABDEL-MONEIM KHATTAB, *MA '68.* He is the new imam (spiritual leader) of the Muslim community in London, Ontario.

Canadian Phoenix Steel & Pipe Ltd., has announced the appointment of DARELL N. MORRISON, *BSc (Met Eng) '68,* as metallurgical sales engineer.

RAMA AGRAWAL, *MSc '68,* is the manager of the gravity-mining division of

Velocity Surveys Ltd. based in Calgary.

The Parkland Regional Library in Saskatchewan has two new branch supervisors, both graduates of the University's School of Library Science. M. KEASCHUK, *BSc '68, BLS '69,* and R. KERKHOVEN, *BLS '69,* will be responsible for branch library operations and the improvement of all services at the local level.

A large assignment has been accepted by DAVE RANSON, *BPE '68,* who has signed on as Lecturer, Coach, and to administer the new pool complex on the University of Manitoba campus.

The new doctor in the town of Williams Lake, B.C., is RUDOPLH P. REGEHR, *MD '68.*

'69

It was quite a week in May for Mr. and Mrs. Eli Bergevin from St. Albert, as three of their eight children graduated from the University. Looking pretty pleased as they crossed the platform at the Jubilee Auditorium were RAY, *BSc (Pet Eng) '69,* LIONEL, *BComm '69,* and DENNIS, *BSc (Ag) '69.* They graduated together because Ray took three years at school before engineering, Lionel stayed out of school one year between high school and university, and Dennis started right after leaving high school.

Taking over in her first full-time position as a recreational director, MISS AUDREY GALE, *BA '69,* is as busy as a one-handed paper-hanger, at Claresholm.

Homecoming October 16 and 17

The Alumni Association's annual Homecoming will be held October 16 and 17, 1970. All the University's graduates are invited to attend the festivities, particularly those from the gold and silver classes, '20 and '45.

DEATHS

CHARLES F. CARSWELL, *BA '15,* the first president of the General Alumni Association at the time of its inauguration in 1918.

E. N. (TED) DAVIS, *BA '22,* a veteran of 45 years in the newspaper business.

MARGARET LOWRIE (ARCHIBALD), *BA '22,* former secretary to W. A. R. Kerr, then Dean of Arts and Science and subsequently President of the University.

ANDREW C. HNATYSHYN, *BSc (Eng) '23,* a well-known hockey coach and mine manager in the Drumheller area.

LUCY A. BAGNALL, *MA '26, BEd '27,* the author of several social studies texts used in the province.

NORMAN A. WAIT, *BSc (Ag) '32,* a member of the Medicine Hat School District staff until his retirement in 1965.

WALTER P. COAD, *BSc (Ag) '39,* one of the pioneer soils men in the department of Lands and Forests.

JOHN A. CHRISTIE, *DDS '38,* a practicing dentist in Norwood, Manitoba.

LAWRENCE M. EDMUNDS, *MD '44,* a popular member of the medical fraternity in Vegreville for 18 years.

JOHN A. SINCLAIR, *BSc '40, MD '44,* past president of the College of Physicians and Surgeons of British Columbia.

GLADYS E. MUTTART, a long-time and devoted friend of the University who led a fight for frankness, understanding, and expert guidance in the field of diabetes.

THOMAS WILLIAM GRINDLEY, *BA '23, BSc (Ag) '25,* MA, PHD, died in Winnipeg during the summer of 1969. After graduating from Alberta (with the Governor General's Gold Medal in Agriculture), he obtained an MA and PhD from the University of Minnesota. During his long career he was statistician and later chief of the Agriculture Branch of the Dominion Bureau of Statistics; Secretary and then Commissioner of the Canadian Wheat Board in Winnipeg; and, until his retirement, an executive with Maple Leaf Mills in Winnipeg. Among the "working honors" given him was the position of Secretary of the Royal Grain Enquiry Commission, of which the late Chief Justice William F. A. Turgeon was Chairman.

FRANK BESSAI, BA, MA, PHD, Associate Professor of English, died November 17, 1969, in the Dr. W. W. Cross Cancer Institute.

Professor Bessai was born in Southey, Saskatchwan in 1928, and taught for five years in public schools in that province. He attended the University of Saskatchewan, receiving his BA with high honors in English and German in 1954 and his MA in English the following year. He obtained his PhD from the University of Toronto in 1960.

The same year, he joined the Department of English here as Assistant Professor. His field encompassed the Anglo-Saxon and Chaucerian periods.

THOMAS E. BERG, BS, PHD, Research Officer in Pleistocene geology in the Geological Division of the Research Council of Alberta, was killed November 19, 1969, when the helicopter in which he was a passenger lost an engine and crashed into a mountainside in Taylor Valley near McMurdo Sound in Antarctica.

Dr. Berg was born in LaCrosse, Wisconsin, in 1933 and obtained his PhD from the University of Wisconsin in 1965. In September of that year he joined the staff of the Research Council of Alberta. He was in the Antarctic as a member of an American Antarctic survey expedition sponsored by the United States National Scientific Foundation.

FREDERICK DOUGLAS READ, *BSc '50, DDS '52,* Associate Professor of Dentistry, died on December 17, 1969, after a short period of hospitalization.

Dr. Read was born in Provost, Alberta in 1920. Seven years after his graduation he joined the Faculty of Dentistry as a part-time instructor. In 1968 he was appointed to permanent full-time staff.

Campaign Report

Building plans

Enrolment at The University of Alberta has been mushrooming by more than 2,500 students each year. Recognizing this, the provincial government has revised its figure for the ultimate size of the University from 18,900 students to 25,000, a figure likely to be reached by 1972.

To provide adequate facilities for even the 18,900, the University must spend far more than the funds now available.

Already the University has spent or firmly committed $63,495,000 for the five year period from 1967 to 1972. In addition to this, essential new facilities amounting to $61,835,000 are required in the next two years. Some of these high priority projects already are underway, including Basic Medical Sciences (1, on the model), the Law Centre (2), the Central Academic Building (3), and the addition to the Physical Education and Recreation Centre (4). Others are still in the planning stages. These include: Fine Arts (5), the North Garneau Library for the humanities and social sciences collections (6), Business Administration and Commerce (7), Agriculture II (8), Arts II (9), Chemistry II (10), Education II (11), Civil Engineering (12), Household Economics II (13), Mechanical Engineering (14), and housing projects for graduates, undergraduates, and married students.

These new facilities accord with a long range development plan devised by Toronto architects A. J. DIAMOND and BARTON MYERS to serve as a "flexible working guide for growth and development;" their model appears below.

$22,750,000 in contributions and provincial matching grants is being sought towards the $61,835,000 cost of these projects.

PLEDGES TO THE THREE ALBERTA UNIVERSITIES FUND

Committee	*Chairman*		*Amount*
EDMONTON DIVISION	G. R. A. Rice		$ 2,857,015
Corporate Division	B. W. Brooker, E. K. Cumming, and G. D. O'Brien	$1,975,002	
Special Names	R. W. Chapman and J. A. Davies	181,258	
Alumni	Rodney Pike	102,382	
Professional Groups	T. H. Miller	340,714	
Accountants	D. W. Welsh and G. B. Hudson	$ 27,730	
Architects	J. B. Bell	34,300	
Dentists	A. V. Calhoun	40,860	
Doctors	L. C. Grisdale	134,187	
Engineers and Geologists	E. K. Cumming	35,875	
Lawyers	D. D. Duncan	56,080	
Pharmacists	S. R. Rogers	6,080	
Teachers		4,767	
University Family	H. E. Gunning	257,659	
CALGARY DIVISION	F. A. McKinnan		2,952,330
LETHBRIDGE DIVISION	A. Balfour		254,704
PROVINCIAL REGIONS	A. W. Platt		192,958
NATIONAL GIFTS	F. G. Winspear		5,484,725
TOTAL (to December 19, 1969)			$11,741,732